TU WIEN Informatics

# Promoting Resilience in Unaccompanied Migrant Youth

## A Social-ecological Design Framework for Technology-enabled Support

DISSERTATION

zur Erlangung des akademischen Grades

**Doktorin der Sozial- und Wirtschaftswissenschaften**

eingereicht von

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an der Fakultät für Informatik

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Wien, 23. Mai 2022

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submitted in partial fulfillment of the requirements for the degree of

**Doktorin der Sozial- und Wirtschaftswissenschaften**

by

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# Erklärung zur Verfassung der Arbeit

Franziska Tachtler, BA MSc

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Wien, 23. Mai 2022

Franziska Tachtler

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# Kurzfassung

Unbegleitete geflüchtete Jugendliche (UMF) müssen vor, während und nach ihrer Flucht nach Österreich ohne erwachsene Angehörige psychisch belastende Widrigkeiten bewältigen. Der Anpassungsprozess, den sie angesichts dieser Umstände durchlaufen, wird als psychische Resilienz bezeichnet. Diese Resilienz könnte durch eine psychologische Betreuung und Unterstützung gefördert werden, die den UMF dabei hilft, ihre belastende Situation zu meistern. Jedoch sehen sich UMF beim Zugang zu psychosozialen Diensten in ihren Aufnahmeländern mit einigen Hindernissen konfrontiert. Wie Studien zunehmend zeigen, könnten technische Lösungen hier eine unterstützende Rolle einnehmen, da sie Interventionen zur Stärkung der psychischen Gesundheit leichter zugänglich machen. Trotzdem mangelt es bisher an Wissen darüber, wie eine technologiegestützte Resilienzförderung für diese Bevölkerungsgruppe gestaltet werden sollte, insbesondere da UMF äußerst komplexe und instabile Umstände bewältigen müssen.

In dieser Doktorarbeit untersuche ich daher, wie die Resilienzförderung von UMF durch Technologien unterstützt werden könnte. Mithilfe von qualitativen und gestalterischen Methoden habe ich (1) ein tiefes Verständnis für den Kontext von UMF in Wien, Österreich, erlangt, (2) Wege zur Integration technologiegestützter Resilienzförderung identifiziert und (3) die Möglichkeiten der Gestaltung technologischer Unterstützung in diesem Designraum untersucht. Durch eine Befragung von UMF sowie professionellen und ehrenamtlichen Hilfskräften konnte ich einen Überblick über die lokale Situation, beteiligte Akteur*innen, Herausforderungen und Möglichkeiten gewinnen. Um dieses Verständnis zu vertiefen und Designmöglichkeiten und -anforderungen zu erkunden, habe ich Co-Design-Workshops mit zwei Schlüsselgruppen aus diesem Kontext durchgeführt, nämlich mit Freiwilligen, die als Mentor*innen fungieren und eine wesentlichen Unterstützungsgruppe von UMF repräsentieren, und mit UMF selbst. Die empirischen Daten wertete ich mit der thematischen Analyse nach Braun und Clarke aus und entwickelte ein theoretisches Verständnis über den Kontext.

Die Ergebnisse meiner Forschung zeigen, dass UMF aufgrund der Asylpolitik und -gesetze unter extremem psychischen Druck und Stress stehen und ihnen zusätzlich die räumliche Umgebung und die Möglichkeiten zum Aufbau individueller Resilienz fehlen. Gleichzeitig ist ihre soziale Umwelt von essenzieller Bedeutung bei der Resilienzförderung. Hier spielen insbesondere die Mentor*innen eine entscheidende Rolle. Jedoch fehlt es diesen sowohl an externer Unterstützung als auch an Fertigkeiten, um der komplexen Situationen

und dem Unterstützungsbedarf ihrer betreuten Jugendlichen angemessen begegnen zu können. Basierend auf diesen Erkenntnissen plädiere ich dafür, in diesem Kontext von der vorherrschenden Betrachtung der Resilienzentwicklung als individuelle Verantwortung abzukommen und stattdessen einem ökosystemischen Ansatz zur Förderung von Resilienz zu folgen. Dieser ökosystemische Ansatz stimmt mit dem sozial-ökosystemischen Resilienzmodell nach Ungar überein, das theoretisch beschreibt, wie verschiedene Systeme zusammenarbeiten müssen, um ein soziales Ökosystem zu schaffen, das Resilienz fördert.

Aufbauend auf die theoretischen und empirischen Erkenntnisse entwickelte ich eine grafische Darstellung ("Map") des sozialen Ökosystems, welche die verschiedenen sozialen Akteure, physische und zeitliche Faktoren, politische Richtlinien und deren Zusammenspiel zur und mit der Resilienzförderung aufzeigt. Diese Darstellung liefert die Grundlage für ein Design Framework, das beschreibt, wie technologiegestützte Unterstützung in diesen Kontext integriert werden könnte. Im Rahmen dieser Arbeit habe ich das Design Framework mit dem Fokus auf zwei Hauptwege zur Integration von technologiegestützten Hilfsmöglichkeiten in den Kontext von UMF weiterentwickelt. Diese zwei Hauptwege sind (1) die direkte technologiegestützte Unterstützung der UMF und (2) die technologiegestützte Unterstützung ihrer Mentor*innen. Die im Rahmen der Arbeit vorgestellten Designbeispiele instanziieren einige Möglichkeiten, wie Designkonzepte für diese Hauptwege mithilfe des Design Frameworks entwickelt werden könnten. Darüber hinaus diskutiere ich in der Arbeit die mögliche Anwendbarkeit des Design Frameworks in anderen Kontexten wie zum Beispiel in Ländern mit niedrigem und mittlerem Einkommen.

Die Dissertation liefert drei maßgebliche Beiträge zum Forschungsfeld. Erstens stellt die Arbeit eine deskriptive Wiedergabe der ökosystemischen Faktoren wie makrosystemische Faktoren (z. B. gesetzliche Regelungen) und mikrosystemische Faktoren (z. B. soziale und physische Faktoren in der alltäglichen Lebenssituation) im Kontext von UMF vor. Zweitens vermittelt diese Arbeit ein Verständnis dafür, wo die Potenziale für technologiegestützte Hilfsmöglichkeiten in diesem Kontext liegen und wie diese aussehen könnten. Dieses Verständnis wird mittels eines Design Frameworks dargestellt. Drittens trägt diese Arbeit zu einem Verständnis bei, wie das Design Framework verwendet werden könnte, um sowohl im untersuchten als auch in anderen Kontexten technologiegestützte Resilienzförderung zu designen. Dabei könnte das Design Framework als Ausgangspunkt dienen, um ökosystemische Faktoren zu identifizieren, die bei der Erforschung und Gestaltung von Technologien zur Stärkung der psychischen Gesundheit berücksichtigt werden müssen. Darüber hinaus könnte das Design Framework Forscher*innen und Designer*innen helfen, technologische Innovationen wie Anwendungen zur Stärkung der psychischen Gesundheit zu entwickeln, die sich in das ökosystemische Zusammenspiel und die Beziehungen der Nutzer*innen integrieren. Einige Möglichkeiten für solche technologischen Anwendungen zur Resilienzförderung von UMF stelle ich in dieser Arbeit als Designbeispiele vor. Diese könnten in zukünftigen Studien weiterentwickelt und evaluiert werden.

# Abstract

Unaccompanied migrant youth (UMY) must cope with adversities before, during, and after their flight to Austria without adult relatives. Psychological resilience describes the process of adapting in the face of such adversity. Mental health support could contribute to promoting resilience in UMY and help them to cope with their adverse situation; however, UMY face many barriers to accessing available mental health services in their host country. Despite increasing evidence that technology could make mental health interventions more accessible, there is a lack of knowledge regarding how to design technology-enabled resilience support for this population who must handle complex and unstable circumstances.

This thesis explores how to potentially support resilience promotion in UMY with the help of technology. I use qualitative and design methods to (1) gain a deep understanding of the context of UMY in Vienna, Austria; (2) identify pathways to integrate technology-enabled resilience support; and (3) explore possibilities to design support for this space. I interviewed UMY and professional as well as volunteer support workers to gain an overview of the local situation, challenges, and opportunities. To deepen this understanding and explore design opportunities and requirements, I conducted co-design workshops with two key groups of actors in this context, namely with mentors of UMY, representing an essential support group, and UMY themselves. I analyzed the empirical data using thematic analysis and built a theoretical understanding of the context.

The findings highlight that, due to the political situation and resettlement policies, UMY experience extreme pressure and stress, and they lack an environment and possibilities to build individual resilience. In addition, a social ecology consisting of different support groups influences resilience promotion in UMY. As part of this social ecology, mentors play an essential role and are the key contact for UMY seeking mental health support; however, the mentors lack support and skills and struggle with the complex situation and support needs of their mentees. Based on these findings, instead of viewing resilience development as a responsibility of the individual, I propose promoting resilience from a social-ecological approach in this context. This social-ecological focus aligns with the social-ecological model of resilience, which proposes theoretically how different systems need to work together to create a social-ecological environment facilitating resilience.

Based on the theoretical and empirical understanding, I develop a map of the social-ecological context that illustrates relevant social actors, physical and temporal factors,

policies, and how these interplay with resilience promotion. This map provides the basis for a design framework that articulates how to integrate technology-enabled support in this context. I further develop the design framework by focusing on two main pathways to integrate technology-enabled support for UMY in this context: through direct technology-enabled support for UMY and by supporting resilience in UMY through their mentors. Proposed design examples instantiate some possibilities regarding how to develop design concepts with the help of the design framework. In addition, I discuss the design framework in relation to research problems and studies in other contexts to reflect on the framework's applicability in other contexts such as low- and middle-income countries.

This thesis provides three main contributions: Firstly, it presents a descriptive account mapping the social-ecological factors such as macro-systemic factors (e.g., legal policies) and micro-systemic factors (e.g., social and physical factors in the everyday living situation). Secondly, this thesis maps out potential pathways and possibilities for technology-enabled resilience support in this context, which is presented as part of a design framework. Thirdly, this thesis contributes an understanding of how to apply the design framework to the research and design of technology-enabled support for this and other contexts. This framework could function as a starting point to identify social-ecological factors that are important to consider when researching and designing mental health technologies in other contexts. In addition, the framework can help researchers and designers develop technological innovations, such as mental health applications capable of integration into the social-ecological interplay and relations. The design examples presented in this thesis instantiate some possibilities of technology-enabled resilience support for UMY and could be further developed and evaluated in future studies.

# Associated Publications and Related Outputs

## Peer-reviewed Conference Publications – Full Papers

**Tachtler, F.**, Talhouk, R., Michel, T., Slovák, P., & Fitzpatrick, G. (2021). Unaccompanied Migrant Youth and Mental Health Technologies: A Social-Ecological Approach to Understanding and Designing. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (pp. 1-19). ACM. doi: 10.1145/3411764.3445470. **Honorable Mention**

*This paper presents the findings of STUDY 3. As the first author, I led the study, analysis, and writing process. Reem Talhouk, an expert in community resilience in the refugee context, acted as a sounding board during all phases of the research and writing process. She supported planning and facilitating the workshop, discussed initial themes with me, gave feedback, and proofread manuscripts. My supervisors Geraldine Fitzpatrick and Petr Slovák and colleague Toni Michel gave feedback on the planning process of the study, the analysis of the study, and manuscripts.*

**Tachtler, F.**, Michel, T., Slovák, P., & Fitzpatrick, G. (2020). Supporting the supporters of unaccompanied migrant youth: Designing for social-ecological resilience. In *Proceedings of the 2020 chi conference on human factors in computing systems* (pp. 1–14) ACM. doi: 10.1145/3313831.3376458. **Honorable Mention**

*This paper presents the findings of STUDY 1 and STUDY 2. I led the study, data analysis, and writing of the manuscripts. During the study, Toni Michel accompanied six interviews, took notes, and discussed the interviews afterward with me. My supervisors Geraldine Fitzpatrick and Petr Slovák and my colleague Toni Michel acted as a sounding boarding during the analysis and gave feedback on and proofread the manuscripts.*

## Journal Publications

Michel, T., **Tachtler, F.**, Slovák, P., & Fitzpatrick, G. (2020). Young People's Attitude Toward Positive Psychology Interventions: Thematic Analysis. *JMIR Human Factors*, 7(4), e21145. doi: 10.2196/21145

Michel, T., **Tachtler, F.**, Slovák, P., & Fitzpatrick, G. (2020). A review of youth mental health promotion apps towards their fit with youth media preferences. In *EAI Endorsed Transactions on Pervasive Health and Technologies*, 2 (2019), 17. doi: 10.4108/eai.13-7-2018.161419

*The review of apps informed the selection of apps during STUDY 3 to select apps that fit youth's media preferences. Toni Michel and I co-organized the co-design study presented in this paper. Toni Michel led the facilitation of the workshop, the review of the youth mental health apps, and the writing of the manuscript. I acted as a sounding board during the analysis process, and proofread and gave feedback on the manuscript.*

## Conference Publications – Extended Abstracts

**Tachtler, F.** (2020). Designing for technology-enabled social-ecological resilience. In *22nd international conference on human-computer interaction with mobile devices and services* (pp. 1-3). ACM. doi: 10.1145/3406324.3424593

*This paper summarizes STUDY 1 and STUDY 2 and reflects on the importance of adopting a social-ecological approach to design technological-enabled resilience support. I led the writing of the manuscript, and my supervisors Geraldine Fitzpatrick and Petr Slovák proofread the manuscript.*

**Tachtler, F.** (2019). Exploring the Use of Technology for Supporting Resilience in Unaccompanied Migrant Youth (Talk). In *Book of Abstracts of 18th International Congress of European Society for Child and Adolescent Psychiatry* (ESCAP 2019) (p. 29).

## Workshop and Special Interest Group Proposals

Ertl, T., Müller, C., Aal, K., Wulf, V., **Tachtler, F.**., Scheepmaker, L., Fitzpatrick, G., Smith, N., & Schuler, D. (2021, June). Ethical Future Environments: Smart Thinking about Smart Cities means engaging with its Most Vulnerable. In *C&T'21: Proceedings of the 10th International Conference on Communities & Technologies-Wicked Problems in the Age of Tech* (pp. 340-345). ACM. doi: 10.1145/3461564.3468165.

**Tachtler, F.**, Aal, K., Ertl, T., Diethei, D., Niess, J., Khwaja, M., Talhouk, R., Vilaza, G. N., Lazem, S., Singh, A., Barry, M., Wulf, V. & Fitzpatrick, G. (2021, May). Artificially Intelligent Technology for the Margins: A Multidisciplinary Design Agenda. In *Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems* (pp. 1-7). ACM. doi: 10.1145/3411763.3441333.

Krüger, M., Aal, K., Wulf, K., **Tachtler, F.**, Talhouk, R., Bustamante Duarte, A. M., Fisher, K., Yafi, E., & Charitonos, K. (2019). Technology at/of the border: a workshop about stories and experiences. In *Proceedings of the 9th International Conference on Communities & Technologies - Transforming Communities (C& T '19)* (pp. 336–342). ACM. doi: 10.1145/3328320.3328408.

Talhouk, R., Aal, K., Weibert, A., Krüger, M., Wulf, V., Fisher, K., **Tachtler, F.**, Shahid, S., Ahmed, S. I., & Bustamante Duarte, A.M. (2019). Refugees & HCI SIG: Situating HCI Within Humanitarian Research. In *Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems (CHI EA'19)* (pp. 1-4). ACM. doi: 10.1145/3290607.3311754.

## Workshop and Symposium Contributions

**Tachtler, F.** (2020). Reflecting on Mental Health Resources for Unaccompanied Migrant Youth from the Perspective of the Social-Ecological Model of Resilience. In *CHI'20 Workshop on Technology Ecosystems: Rethinking Resources for Mental Health*, Hawaii, USA.

**Tachtler, F.** (2019). How can technology support mentors in promoting mental wellbeing of unaccompanied migrant youth?. In *CHI'19 Symposium on Computing and Mental Health*, Glasgow, UK.

**Tachtler, F.** (2018). Designing for resilience with unaccompanied migrant youth. In *CHI'18 Symposium on Computing and Mental Health*, Montreal, Canada.

**Tachtler, F.** (2017). Designing for Resilience with Unaccompanied Migrant Youth from the Arab World. In *DIS'17 Workshop on Design4Arabs Workshop*, Edinburgh, UK.

## Invited Article

**Tachtler, F.** (2019). Keep your head up! Wie in Großbritannien das Wohlbefinden psychisch gefährdeter junger Flüchtlinge gestärkt wird. *asyl aktuell – Gesundheit: Kräfte stärken*, 2, 10-13.

## Final Report of Horizon 2020 MSCA ITN program

**Tachtler, F.**, Slovák, P., & Fitzpatrick, G. (2020). D2.1 Framework and design implications for technology development.

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CHAPTER 1

# Introduction

## 1.1 Motivation

Forced displacement represents a current and significant challenge. The global number of forcibly displaced people such as refugees[1] and asylum-seekers[2] is increasing. Austria, for instance, represents a place in the European Union (EU) where many people arrive after following the Eastern Mediterranean route to the EU, and was the fourth-largest receiving country of asylum-seekers in the EU in 2015 (Eurostat, 2021a). Despite the highly controversial implementation of measures hindering people fleeing to the EU (News European Parliament, 2021) and the Covid-19 pandemic, an increase in asylum applications in Austria again occurred during the second half of 2021 (Statistics Austria, 2021). The reasons for this forced displacement include persecution, conflict, violence, human rights violations, or events seriously disturbing public order (UNHCR, 2019, 2021). In addition, the worldwide climate crisis will lead to further forced displacement in the future (UNHCR, n.d.-b).

Unaccompanied migrant youth (UMY), who *"arrive in the EU unaccompanied by a responsible adult or who are left unaccompanied after their arrival"* (House Of Lords, 2016, p. 7) represent a large [3] and vulnerable[4] group of forcibly displaced people. They are exposed to many mental health risks (Höhne, van der Meer, Kamp-Becker, & Christiansen, 2020; Hodes, Jagdev, Chandra, & Cunniff, 2008), and even after arriving in the country of destination[5], they experience many stresses such as continued unstable educational and living situation (Hodes & Vostanis, 2019) and discrimination (Fazel & Betancourt, 2018). Compared to non-migrant youth and migrant children with parents, UMY experience increased mental health risks and display higher levels of post-traumatic stress disorder symptoms (Huemer, Karnik, Voelkl-Kernstock, et al., 2009).

[1] According to the 1951 convention protocol, a refugee is *"someone who is unable or unwilling to return to their country of origin owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion"* (UNHCR, 2011, p. 3).

[2] An asylum-seeker is *"someone whose request for sanctuary has yet to be processed"* (UNHCR, n.d.-a).

[3] In 2017, around 31,400 asylum seekers in the EU were UMY (Eurostat, 2021b); however, the number of UMY might be much higher since many UMY remain undetected (Migration Data Portal, 2020).

[4] see definition of vulnerable population in *Appendix – Section 10.3*.

[5] see definition of country of destination in *Appendix – Section 10.3*.

Mental health support could aid UMY in developing strong resilience[6], which, in turn, could prevent the onset of mental illnesses (Zolkoski & Bullock, 2012). Evidence shows that engaging in mental health interventions such as cognitive behavior therapy (CBT)-based interventions (Joyce et al., 2018; Liu et al., 2020) as well as interventions promoting personal competency (Brownlee et al., 2013) and coping strategies (Brownlee et al., 2013), for example, could increase resilience. These interventions could help promote protective factors such as cultural competences and coping skills in UMY (Höhne et al., 2020; Keles, Friborg, Idsøe, Sirin, & Oppedal, 2018); however, individual and systemic barriers hinder UMY in accessing mental health support (Hodes & Vostanis, 2019; Majumder, O'Reilly, Karim, & Vostanis, 2015). For this reason, it is important to address both real and perceived barriers to accessing mental health care when designing and offering mental health interventions for refugee populations such as UMY (Fazel & Betancourt, 2018).

In recent years, a growing body of work in Human-Computer-Interaction (HCI) and psychology investigates how technology could support mental health promotion and treatment in different non-refugee and mainstream contexts. Technology has been shown to be effective in delivering mental health interventions and making them more accessible and engaging in general (Alva, Wadley, & Lederman, 2015; Donker et al., 2013; Firth et al., 2017; Schroeder et al., 2018). Evidence shows that, for instance, resilience-promoting interventions (such those listed above) can be translated into the digital space as researchers proposed how technologies could deliver interventions such as CBT interventions (G. Doherty, Coyle, & Sharry, 2012), behavioral activation (Rohani et al., 2019, 2020), and dialectical behaviour therapy (Schroeder et al., 2018). Researchers also suggested that technology might be a promising solution to overcome access barriers in marginalized contexts such as in a low socioeconomic situation[7] (Naslund et al., 2017); however, technological solutions impose new access barriers such as the lack of access to mobile devices and internet (ibid.) and culturally appropriate language (Pendse et al., 2019). If research increasingly focuses on the requirements of mainstream populations such as people with high socioeconomic backgrounds, technological solutions will mainly meet the needs of these populations, which might thereby increase the treatment gap between people with high and low socioeconomic status (ibid.). This development also might have negative consequences for UMY, who already struggle to access mental health services in high-income countries[8] (HIC), such as Austria.

In the refugee context, the UN Refugee Agency (UNHCR, 2016) emphasized that non-governmental organizations (NGOs) and service providers need to better utilize the existing connectivity provided by the ubiquity of mobile applications (apps) and thereby maximize the impact of their services. Following the refugee crisis in 2015, emerging research in HCI explores the role of technology to support refugees, such as by providing technological aids for accessing antenatal health (Talhouk et al., 2016), overcoming language barriers (D. Brown & Grinter, 2016) or accessing services in a new country (Coles-Kemp & Jensen, 2019). Researchers also identified that technological solutions could impose barriers if these solutions do not meet the needs of refugee populations (Coles-Kemp & Jensen, 2019; Sabie & Ahmed, 2019). These findings underline the importance of researching and understanding the different needs and challenges of refugee populations and accounting for these when designing technologies. In recent years, a few studies indicate that technology could support delivering mental health support for refugee and migrant youths (Burchert et al., 2019; Ertl, Aal, Diraoui, Tolmie, & Wulf, 2020; Röhr et al., 2021; Rubeis, 2021; Shala et al., 2020; Spanhel et al., 2019), thereby underlining the importance and currency of this research topic.

[6] Psychological resilience refers to *"the process and outcome of successfully adapting to difficult or challenging life experiences"* (APA, 2020).

[7] see definition of marginalized and socioeconomic status in *Appendix – Section 10.3*.

[8] see definitions of high-, middle-, and low-income countries in *Appendix – Section 10.3*.

Few studies have explored how to design technology to deliver mental health support for refugees, however, and none have specifically examined the context of UMY, who, according to researchers in the field of mental health promotion, have unique needs and do not fit traditional parameters for refugees and young people in care (Huemer, Karnik, & Steiner, 2009). This research project thus explores how resilience development for UMY could be supported with the help of technology.

## 1.2 Research Aims and Questions

This thesis explores the research question: *How could resilience development for UMY be supported with the help of technology?*. To answer this research question, this thesis addresses the following sub-research questions:

- Research question 1 (RQ1): How does resilience promotion currently occur in the everyday context of UMY?
- Research question 2 (RQ2): What are the possibilities for technology in this space?

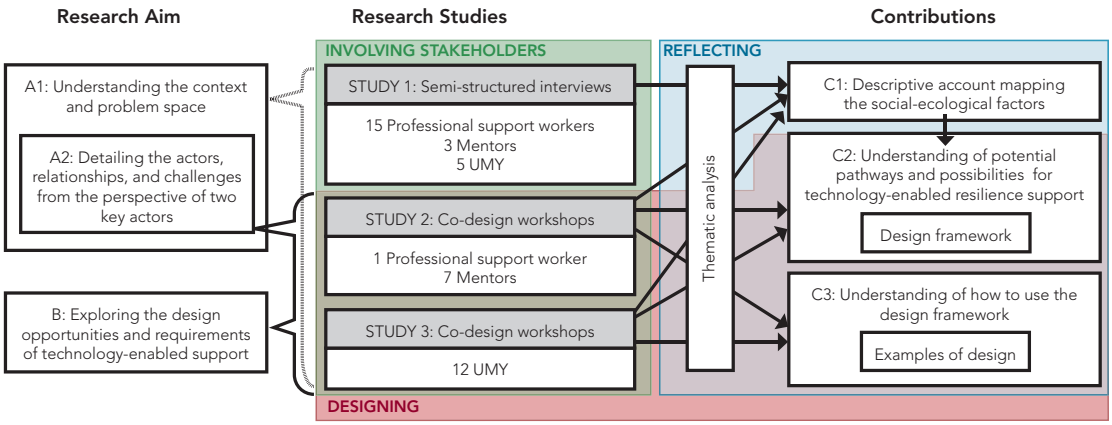



Figure 1.1: Overview of research elements and contributions.

To answer the research question, the following aims guide this research:

(A) Gaining an in-depth understanding of the context of UMY and the problem space. The focus is on understanding the everyday context of UMY, how UMY develop resilience, and where the gaps are. Based on the initial understanding, it became important to detail the understanding of the actors, relationships, and perspectives of two key actors in this context, namely the UMY and an essential support group of volunteers acting as mentors (see A2 in Figure 1.1).

(B) Exploring the design opportunities and requirements of technology-enabled support. The aim is to map out technological intervention points to enable resilience support in the context of UMY. In addition, I aim to explore what (and how) could be designed for these technological intervention points in this context, specifically for the two main pathways of direct technology-enabled support for UMY and by supporting resilience through mentors.

Figure 1.1 provides an overview of how the research aims (A1, A2, and B) lead to the research studies (STUDIES 1-3) and contributions (C1-3), which are discussed in the subsequent chapters.

## 1.3 Research Process

In this thesis, I explore how resilience development for UMY could be supported with the help of technology. This thesis thereby focuses on the context of the post-migration phase in Austria. To research, understand, and design for this problem space, this research project adopts a constructivist (Lincoln & Guba, 1986; Mackenzie & Knipe, 2006; Mertens, 2005) and Research through Design (RtD) approach (Zimmerman, Forlizzi, & Evenson, 2007) using design and qualitative methods.

I conducted semi-structured interviews in Vienna, Austria to gain an initial understanding of the context, actors, and challenges and better define the problem space (STUDY 1 in Figure 1.1). I interviewed five UMY, 15 professional support workers, and three volunteer support workers acting as mentors (hereafter referred to as mentors). I identified that UMY must cope with external and internal stressors caused by their political situation. In addition, due to political regulations, UMY lack possibilities to strengthen their individual resilience to cope with these stressors. I also identified the importance of a social ecology consisting of different support groups in promoting resilience in UMY. The mentor support group especially plays a crucial role but struggle with this role. These findings informed the design of STUDY 2 and STUDY 3, which focuses on the UMY's social ecology from two angles.

To deepen understanding of how to integrate and design technology-enabled resilience support for UMY, I focused the research on two main actors: the UMY and their mentors. I conducted a series of co-design workshops with seven mentors and one professional support worker to co-design a guidebook for newcomer mentors (STUDY 2 in Figure 1.1). The findings led to deeper social-ecological understanding of mentors' challenges and practices to support their mentees, potential pathways for technology-enabled resilience promotion, and how to design for these pathways. In addition, I conducted a series of co-design workshops with 12 UMY to explore how mental health apps, as one form of technology-enabled resilience support, integrate into the social-ecological context of UMY (STUDY 3 in Figure 1.1). This study led to understanding how to design direct technology-enabled resilience support for UMY that supports managing and mitigating the positive and negative influences of the social-ecological environment.

I analyzed the empirical data of each study by using reflexive thematic analysis (Braun & Clarke, 2012, 2013, 2020) and built a theoretical understanding of this context and how to design technology-enabled resilience support for UMY's social-ecological context. These efforts lead to the research contributions presented in the next section.

## 1.4 Research Contributions

The *first contribution* of this thesis (C1 in Figure 1.1) is a descriptive account of UMY's context mapping the social-ecological relations, qualities, and barriers interplaying with UMY's resilience. This descriptive account is presented in the form of a map of the social-ecological factors of this context. This map instantiates the theoretical model from psychology regarding the social-ecological model of resilience by Ungar (2008, 2011, 2012a, 2012b) and Ungar et al. (2013), which became more important for resilience promotion in this context through understanding that/how social-ecological factors promote and inhibit resilience in UMY.

The *second contribution* of this thesis (C2 in Figure 1.1) regards understanding the potential pathways and possibilities for technology-enabled resilience support in this context, which is presented as part of a social-ecological design framework for resilience promotion for UMY. This framework evolved along with the research studies of this thesis, builds on the understanding of the map of the social-ecological context, and is further elaborated with opportunities and design requirements for technology-enabled support. Because this research project concerns the area of HCI, these opportunities focus on technical components. The design framework helps identify pathways to integrating technology-enabled resilience promotion intervention into this and similar contexts as well as social-ecological factors that are important to consider when designing technology-enabled support. This thesis and design framework focus on two main pathways, namely, (1) approaches and requirements to integrate technology-enabled support for UMY in their social-ecological environment and (2) to integrate technology-enabled resilience support for UMY through their mentors.

The framework presents:

- how to integrate technology-enabled resilience support into the social ecology of UMY;
- what social-ecological influences (e.g., macro-systemic influences) and inter-relationships require consideration (e.g., managing or mitigating) when designing technology-enabled support (e.g., technological resources for UMY or/and mentors) that integrate well into the social-ecological context of UMY.

The *third contribution* of this thesis (C3 in Figure 1.1) concerns understanding how to apply the design framework to research and design mental health technologies. This contribution results from using the social-ecological lens to conceptualize design examples and from discussing the applicability of the framework in other contexts. The design examples illustrate possible technological solutions that are designed with the help of a map of the social-ecological context, which later builds the basis for the design framework and examples specific to this context. I argue, however, that the approach to design with a social-ecological lens are useful and transferable to other contexts, namely into other marginalized and refugee contexts, as similar to this context, social-ecological factors such as policies and socioeconomic status hinder the ability to apply coping strategies and hinder supporters in providing support. The usefulness of the design framework in this context could inspire the creation of a similar framework in other contexts where resources are limited; navigating and applying resources must be simple; different systems interact to support individuals; and where the mental health of supporters and children/youths is at risk.

This thesis contributes to the body of work on HCI and refugees by providing a starting point for researching and designing mental health technologies for UMY contexts. This thesis also contributes to the body of work on HCI and mental health technology by providing a starting point and case study for how to design mental health technologies with/for a vulnerable and marginalized community from a social-ecological rather an individual approach.

## 1.5 Thesis Overview

This thesis is structured into three main parts:

### 1.5.1 Part 1: Contextual and Theoretical Background

*Chapter 2: Related Work* introduces the psychology background and different approaches to promoting resilience in general and in UMY. The chapter situates this work in the research fields of mental health technology and of HCI and refugees. In former, increasing evidence shows that technology could increase access to mental health support and that interventions adopting an individual resilience approach are translatable into the digital space. In the field of HCI, research increasingly focuses on the role of technology in the refugee context; however, little work focused on the intersection of both research areas, namely on the role and design of mental health technology for vulnerable and marginalized populations such as refugees. To date, none focused on technological-enabled mental health support for UMY.

*Chapter 3: Setting Up the Context* presents a description of this context. The chapter functions as a context orientation and provides information about the asylum process, residence status, and the related accommodation and support system. This information also informed the choice of methodology.

*Chapter 4: Methodology and Research approach* introduces a constructivist (Mackenzie & Knipe, 2006; Mertens, 2005; Lincoln & Guba, 1986) and RtD (Zimmerman et al., 2007) approach as an underlying philosophical stance of this research. *Chapter 4* also motivates co-design methods and provides an overview of different studies building the research of this thesis. In addition, this chapter introduces the types of knowledge contributions and the development process behind the design framework.

After the theoretical background, the following chapters describe the empirical research of this thesis.

### 1.5.2 Part 2: Empirical Research: Understanding the Context and Exploring Possibilities for Technology-enabled Resilience Support

*Chapter 5* provides understanding of current enablers of and barriers to promoting resilience in UMY in Vienna, Austria by introducing the perspectives of UMY and their supporter. As each study of this thesis (STUDIES 1-3 in Figure 1.1) contributes to a deep understanding of this context, this chapter draws on findings from semi-structured interviews with UMY, professional support workers, and mentors (STUDY 1 in Figure 1.1); co-design workshops with mentors (STUDY 2 in Figure 1.1); and co-design workshops with UMY (STUDY 3 in Figure 1.1). The findings presented in this chapter indicate that it is essential to view resilience promotion using a social-ecological lens in this context, which leads to a shift from designing individual-focused mental health technologies towards designing from a social-ecological approach.

*Chapter 6* presents the development and key components of the map of the social-ecological context (C1 in Figure 1.1), which is based on the empirical data (presented in *Chapter 5*) and the theory of the social-ecological model of resilience by Ungar (2008, 2011, 2012a, 2012b) and Ungar et al. (2013). This map also builds the underlying structure of the design framework, which is further developed in the subsequent chapters (C2 in Figure 1.1).

*Chapters 7* and *8* focus on the perspective of two key actors in the social-ecological context, namely UMY and their mentors. These chapters present the empirical findings on how to design technological interventions for these key actors to promote resilience in UMY.

*Chapter 7* draws on the insights gained through co-design workshops with mentors (STUDY 2 in Figure 1.1) and focuses on how to design technological interventions to support mentors in promoting resilience in UMY. I first present challenges and gaps in the social-ecological environment which support and hinder mentors' abilities to provide support. Based on these findings, I detail the map of the social-ecological context with a focus on systems that interplay with the mentors when providing support and identifying potential pathways to integrating technology-enabled support for mentors, which, in turn, could promote resilience in UMY. The detailed map contributes to the final version of the design framework (C2 in Figure 1.1). I also present design examples for each opportunity (C3 in Figure 1.1), which were developed with the help of the map of the social-ecological context and draw on literature from other contexts where researchers explored and suggested technological solutions for support needs similar to the mentors' needs. This approach contributes to understanding how to use the map as a framework to design for this social-ecological context (C3 in Figure 1.1).

*Chapter 8* uses the design knowledge gained through the co-design workshop with UMY (STUDY 3 in Figure 1.1) and focuses on how to design technological resilience resources as an integrated part within UMY's social-ecological environment. I present the social-ecological factors which UMY directly experience as barriers and enablers to integrating technology-enabled resilience support (e.g., mental health apps) in their social-ecological environment. Based on these findings, the chapter presents the qualities and influences of the social-ecological environment (e.g., macro-systemic influences) which technology-enabled resilience support needs to consider. This understanding also helps further elaborate parts of the map of the social-ecological context with a focus on direct technology-enabled support for UMY, which contributes to the final version of the design framework (C2 in Figure 1.1). The design examples presented in this chapter illustrate potential design solutions that manage or mitigate these social-ecological influences and, in turn, integrate into UMY's social-ecological environment (C3 in Figure 1.1).

### 1.5.3 Part 4: Synthesis of the Thesis

The last two chapters synthesize the insights gained throughout the thesis. In *Chapter 9: Discussion*, I reflect on the shift from designing individual-focused mental health technologies towards designing from a social-ecological approach and emphasize its importance. I argue that without adopting a social-ecological lens, technology-enabled resilience support is likely to fail in this context, and many opportunities and pathways for integrating technology-enabled resilience support would stay undetected. I also present the final design framework by drawing on the findings presented in *Chapters 5*, *7*, and *8*. I highlight the qualities of the design framework and how it might be applicable to other pathways for technology-enabled resilience promotion in this and other contexts of refugee and marginalized communities. I then reflect on how I met the quality criteria orienting my work and on the challenges and limitations of the research of this thesis.

*Chapter 10* summarizes the key contributions of this thesis and notes potential directions of future research.

CHAPTER 2

# Related Work

## 2.1 Chapter Overview

This chapter discusses the importance of supporting resilience promotion in the context of UMY and why technology is a promising approach for this purpose. After introducing the concept of psychological resilience and different approaches to promoting resilience, this chapter summarizes the current state of the art of resilience research in the context of UMY. This chapter then situates the work on promoting resilience in UMY in the body of work on HCI and mental health promotion, where there is little research on supporting marginalized populations such as UMY, and in the body of work on refugees and HCI, where few studies specifically focused on mental health promotion.

Some reflection elements are based on related work presented in "Supporting the Supporters of Unaccompanied Migrant Youth: Designing for Social-ecological Resilience" (Tachtler, Michel, Slovák, & Fitzpatrick, 2020), "Designing for Technology-Enabled Social-Ecological Resilience" (Tachtler, 2020), and "Unaccompanied Migrant Youth and Mental Health Technologies: A Social-Ecological Approach to Understanding and Designing" (Tachtler, Talhouk, Michel, Slovak, & Fitzpatrick, 2021).

## 2.2 Psychological Resilience

The history of resilience research has included many definitions and conceptualizations of resilience (Fletcher & Sarkar, 2013; Hart et al., 2016; Wright, Masten, & Narayan, 2013). As part of this research, I follow the broad but generally accepted definition of psychological resilience by the American Psychological Association (APA): namely *"the process and outcome of successfully adapting to difficult or challenging life experiences"* (APA, 2020). Before presenting the current state of the art of resilience research in the context of UMY, the following sections present key concepts that interplay with resilience promotion and how resilience could be promoted with interventions.

### 2.2.1 Risk and Protective Factors Interplaying with Resilience Mechanisms

Different factors interplay with resilience mechanisms, which are important to understand to explore how to support resilience in UMY. Risk factors inhibit resilience by increasing the probability of poor outcomes and can be categorized into biological factors, such as congenital defects, and environmental factors, such as negative life experiences (Zolkoski & Bullock, 2012). In contrast to risk factors, promotive factors have a positive effect on a child (e.g., parents' poor mental health was a risk factor, while their positive mental health is a promotive factor (Sameroff, Gutman, & Peck, 2003)). In addition, protective factors decrease the likelihood of the onset of illness in cases of adversity and are particularly important at high levels of adversity (Wright et al., 2013). The early phase of resilience research included consistent findings regarding a set of factors that were associated with better adaption (Garmezy, 1985; Masten, 2001, 2014; Wright et al., 2013). These factors can be categorized into child attributes (individual differences), family attributes (e.g., socioeconomic variation, parenting), and extra-familial differences (e.g., neighborhood, school, mentors outside the family) (Masten, 2014). Child attributes are, for instance, social competence, problem-solving skills, critical consciousness, autonomy (Bernard, 1993, 1995), and a sense of purpose (Bernard, 1995). Overall, these factors influence the occurrence of resilience and help understand how a person such as UMY develops resilience.

| Reference | Proposed categories of intervention and intervention examples |
|---|---|
| (Zolkoski & Bullock, 2012) | Individual level (e.g., promoting personal skills and resources), family-level (e.g., promoting a positive parent-child relationship), social environment (e.g., promoting supportive peer and teacher relationships and academic successes); |
| (Brownlee et al., 2013) | Personal competency, coping strategies, social competency, pro-social involvement, and cultural identity; |
| (Joyce et al., 2018) | CBT-based interventions and mindfulness; |
| (Liu et al., 2020) | Mindfulness (e.g., meditation), physical activity (e.g., sports), evidence-based CBT, social support (e.g., building support network, connecting with others), psycho-education (e.g., knowledge), and alternative (e.g., music, pet therapy); |

Table 2.1: Categories and examples for interventions and factors promoting resilience presented in reviews on resilience promotion interventions.

### 2.2.2 Putting Theory into Practice: Promoting Resilience With Interventions

To understand how technology could support promoting resilience in UMY, it is crucial to understand how resilience can be promoted in general, such as using targeted interventions. A range of resilience training and programs are implemented in different contexts to promote resilience. Interventions can target the individual level focusing on personal skills and resources; the family-level focusing on the parent-child relationship; or the social environment level promoting, for example, supportive peer and teacher relationships and academic successes (Zolkoski & Bullock, 2012).

By investigating the processes behind positive adaptation, researchers learned that resilience and

related protective and promotive factors manifest differently across different contexts (Fletcher & Sarkar, 2013; Masten, 2014; Panter-Brick & Leckman, 2013; Wright et al., 2013). Researchers also increasingly highlight complex interactions within and between the individual and social-ecological environment that lead to resilience and that these factors require consideration when promoting resilience (Liu et al., 2020; Wright et al., 2013). Ungar et al. (2013), however, argue that, despite the awareness of these complex interactions, the focus on promoting a successful adaptation continues to concern an individual's coping strategies; instead, they propose the need for a facilitative environment that promotes resilience in the individual child.

In practice, however, many programs promoting resilience focus on individual strengths and factors (cf. Table 2.1 providing an overview of the different types of intervention that are currently implemented and evaluated in practice). Evidence-based cognitive behavior therapy (CBT) represents a widely implemented intervention approach to promoting resilience (Joyce et al., 2018; Liu et al., 2020). Many interventions focus on intra-individual aspects such as personal competency (Brownlee et al., 2013), coping strategies (ibid.), cultural identity (ibid.), mindfulness (Joyce et al., 2018; Liu et al., 2020), and psycho-education (Liu et al., 2020). In addition, programs promoting resilience focus on promoting inter-personal factors such as social competency (Brownlee et al., 2013), and social support (e.g., building a support network, connecting with others) (Liu et al., 2020).

Thus, one reason that I started the research of this thesis by focusing on an individual resilience approach is many programs for the individual approach are evaluated in practice, which still represents the primary approach to promoting resilience. In addition, *Section 2.4* shows that researchers have explored technological solutions delivering interventions similar to those interventions promoting individual resilience skills. Thus, this provides evidence that interventions adopting an individual resilience approach are translatable into the digital space. Based on the insights gained through the studies of this thesis, however, the social-ecological model of resilience by Ungar (2008, 2011, 2012a, 2012b) and Ungar et al. (2013) will become more important and later detailed.

Building on the understanding of mechanisms contributing to resilience, the following section examines how different risk and protective factors interplay with the resilience of UMY and presents the state of the art of research on supporting resilience promotion in UMY. This information enables better understanding how technology could play a role here.

## 2.3 Promoting Resilience in UMY

Resilience is an important topic in the field of migrant youths (including UMY) and mental health promotion research. Migrant youth have a high prevalence of mental health problems such as depression and behavioral problems (Eruyar, Huemer, & Vostanis, 2018; Fazel & Betancourt, 2018; Hodes & Vostanis, 2019). Compared to both non-migrant youth and migrant children with refugee backgrounds accompanied by their parents, UMY experience increased mental health risks and display higher levels of post-traumatic stress disorder symptoms (Huemer, Karnik, Voelkl-Kernstock, et al., 2009); nevertheless, many UMY show signs of resilience by fleeing their country of origin (Keles et al., 2018). Research investigated the factors that contribute to the resilience of some UMY to understand their resilience mechanisms and how to better support the resilience of all UMY. The next section summarizes the risk and protective factors identified in the context of UMY. The subsequent sections then present which interventions that researchers suggest for promoting resilience of UMY and present the current understanding of how different barriers hinder UMY from engaging in these interventions and available mental health care.

| Reference | UMY /MY | Intra-individual | Inter-individual *(individual focused)* | Inter-individual *(external)* | Policy level |
|---|---|---|---|---|---|
| (Hettich, Seidel, & Stuhrmann, 2020) | MY | Coping skills; management of feelings; sense of control and agency | | Creating a safe space; trustful relationship; post-migration environment | |
| (Scharpf, Kaltenbach, Nickerson, & Hecker, 2021) | MY | Trauma-focused treatments (e.g., narrative exposure therapy, trauma-focused CBT) | Social relations to peers and friends | Parents' mental health; parenting; high support living arrangement | Protection from exposure to violent conflicts and wars |
| (Sullivan & Simonson, 2016) | MY | Reduction of psychiatric symptoms; creative expression intervention; trauma-focused CBT | | | |
| (Frounfelker et al., 2020) | MY | Psycho-therapeutic interventions (e.g., trauma-focused CBT, systemic, trans-cultural, and multi-modal approaches) | Community-based interventions (e.g., Photovoice) | Residential setting | |
| (Horlings & Hein, 2018) | MY | Non-specialized interventions (e.g., psychoeducation, relaxation, affect regulations, coping strategies); specialized care (e.g., psycho therapeutic interventions, trauma-focused CBT, short-term group interventions) | Social support (school, employment, peer support, language training) | Social support (family reuniting, no discrimination) | Mental health providers need to educate society and governments on the risk of policies of deterrence |
| (Höhne et al., 2020) | UMY | Coping skills regarding traumatic experience; teach and establish cultural competence | Strengthen social participation | High supportive living arrangement (e.g., foster care) | Prevent stressful life events in the post-migration phase |
| (Rodriguez & Dobler, 2021) | UMY | High cognitive function; adaptive problem-solving skills; positive self-esteem; individual faith; process of acculturation | Relationships (family attachment, role of peers) | Care arrangements | |
| (Keles et al., 2018) | UMY | Demographic factors (gender, time stayed in host country); pre-migration trauma; acculturation-related factors; self-perception | | | Policies supporting adjustment process (i.e., resettlement process, educational opportunities) |
| (Abreu, Castro-Olivo, & Ura, 2019) | MY | Ethnicity; salience of ethnic identity | Host country language literacy; acculturation differences; parent-child relationship; communication styles; gender roles | Home-school communication | Policies impacting sense of belonging; resettlement policies; average stay in host culture |

Table 2.2: Overview of a selection of reviews on mental health interventions for migrant youth (MY) and unaccompanied migrant youth (UMY).

### 2.3.1 Specific Risk and Protective Factors for UMY

In the area of psychology and mental health, a growing body of work has recently investigated the protective and risk factors of UMY (e.g., (Hodes et al., 2008; Höhne et al., 2020; Huemer, Karnik, & Steiner, 2009; Huemer, Karnik, Voelkl-Kernstock, et al., 2009; Keles et al., 2018; Mitra & Hodes, 2019; Ní Raghallaigh & Gilligan, 2010; Rodriguez & Dobler, 2021; Rücker, Büttner, Lambertz, Karpinski, & Petermann, 2017)). The most recent review categorized the resilience factors into individual factors (e.g., high cognitive function, adaptive problem-solving skills, easy temperament and positive self-esteem, individual faith in a higher power or religious orientation, and conviction in needing to migrate), lifetime relationships (e.g., family, attachments, the role of peers), the process of acculturation (e.g., time and continuity) and care arrangements (e.g., supported but less restrictive living arrangements) (Rodriguez & Dobler, 2021). In addition, many studies and reviews include UMY when researching the mental health and resilience of migrant youth (e.g., (Abreu et al., 2019; Eruyar et al., 2018; Fazel, Reed, Panter-Brick, & Stein, 2012; Pieloch, McCullough, & Marks, 2016; Scharpf et al., 2021)) and overlaps occur between the risk and protective factors of UMY and accompanied migrant youth, such as individual, relationship, and socio-cultural factors (Scharpf et al., 2021). However, UMY have unique needs and, according to Huemer et al. (2009), do not fit into traditional parameters for refugees and young people in care. Because the family is a dominant risk and protective factor for migrant youth resettled in HIC (Fazel et al., 2012), this situation occurs differently for UMY as they are not accompanied by their family. As UMY have increased needs, it is thus crucial to focus on how to support promoting resilience in UMY to be able to design solutions that fit their needs.

### 2.3.2 Different Types of Interventions Promoting Resilience in UMY

While UMY are exposed to a risk of mental illness and have increased needs, little research focuses on interventions and mental health support specifically for UMY. A recent narrative review categorizes the interventions for UMY into those supporting intra-individual and inter-individual factors (Rodriguez & Dobler, 2021). Intra-individual factors are, for instance, cultural competence (Höhne et al., 2020; Keles et al., 2018), coping skills regarding traumatic experiences (Mitra & Hodes, 2019; Höhne et al., 2020), and daily hassles (Keles et al., 2018). Inter-individual factors include supportive living arrangements (Höhne et al., 2020) and positive relationships such as networks in schools and communities (Keles et al., 2018). Only a few studies have evaluated the effectiveness of interventions for UMY, and three studies identified that trauma-focused CBT improved the mental health of UMY (Mitra & Hodes, 2019). King and Said (2019) explored how to adapt evidence-based CBT interventions to the needs of UMY and recommend considering UMY's physical health needs, sleep, language needs, and issues related to power, racism and status to make interventions more acceptable.

More intervention programs for promoting resilience have been proposed and evaluated in studies focusing on migrant youth (including UMY) (see Table 2.2). Most focus on individual factors (e.g., teaching psychological first aid (Fazel & Betancourt, 2018), skills for recovery (Fazel & Betancourt, 2018), coping strategies (Eruyar et al., 2018; Hettich et al., 2020), and emotion regulation skills (Newnham, Kashyap, Tearne, & Fazel, 2018)). Researchers also emphasize that mental health support needs to occur in a multidimensional and social-ecological manner (Eruyar et al., 2018; Fazel & Betancourt, 2018; Hodes & Vostanis, 2019); for instance, many researchers increasingly note the importance of interventions at the school and community level (e.g., (Eruyar et al., 2018; Fazel & Betancourt, 2018; Fazel et al., 2012; Frounfelker et al., 2020; Newnham et al., 2018; Pieloch et al., 2016; Scharpf et al., 2021; Sullivan & Simonson, 2016; Tozer, Khawaja, & Schweitzer, 2018)) and at the policy and societal level (Fazel et al., 2012; Horlings & Hein, 2018; Huemer,

Karnik, Voelkl-Kernstock, et al., 2009; Scharpf et al., 2021). These interventions, however, target the individual youth level (e.g., supporting verbal processing of past experiences and teaching creative art techniques (Tyrer & Fazel, 2014)) or at the family-/ parent-level (Scharpf et al., 2021), which is not possible in the case of UMY. Implementing school-wide culturally adapted social-emotional learning programs to promote tolerance and a welcoming school environment provides a rare example of how interventions could target the social-ecological level (Abreu et al., 2019). Despite increasing interest in developing more comprehensive interventions, there is a lack of evidence of these programs which are still "in their infancy" (Eruyar et al., 2018).

### 2.3.3 UMY's Barriers to Access Mental Health Support

To support resilience promotion, it is also important to make interventions more accessible. According to Fazel and Betancourt (2018), addressing both the real and perceived barriers to accessing mental health care is essential in any intervention for refugee populations. Migrant youth's and UMY's barriers that hinder access to mental health services and resources are language-related and cultural barriers (Majumder et al., 2015; Hodes & Vostanis, 2019), lack of knowledge of their rights, fear of deportation (Hodes & Vostanis, 2019), and mistrust of services/authorities (Majumder et al., 2015; Hodes & Vostanis, 2019). Currently available child mental health services and related service providers struggle to support the high number of UMY (Eruyar et al., 2018). Some barriers and mental health challenges are also gender specific; for instance, a study in Austria showed that male refugees and asylum-seekers rarely seek psychological and psychiatric support (Kohlenberger, Buber-Ennser, Rengs, Leitner, & Landesmann, 2019), struggle to express their emotions, and view mental health as a stigmatized topic (Weigl & Gaiswinkler, 2019). UMY thus have decreased access to mental health services, and it is important to also understand real and perceived barriers specific to different groups among UMY. The following section presents which role technology could play in overcoming these barriers.

## 2.4 Technology Delivering Interventions and Enabling Access

Technology seems to be a promising solution to overcome access barriers and deliver interventions promoting resilience. In recent years, increasing evidence shows that technology could support delivering psychological interventions, which coincides with increased interest in HCI regarding the role of technology in the refugee context; however, only a few recent research projects in the field of psychology focus on mental health technologies in migrant and refugee contexts and none on UMY. Understanding the challenges and needs of designing technology in both the mental health context and refugee context nonetheless contributes to understanding the challenges and factors that might be important in the context of UMY and in identifying the unique design needs of UMY. The next sections thus summarize the current state of the art of mental health technology and then present the role of technology in the refugee context and specifically in promoting mental health in refugee and migrant contexts.

#### Mental Health Technology

In the field of mental health technology, researchers have proposed how technology could support delivering different types of interventions such as behavioral activation and interventions (Mohr, Burns, Schueller, Clarke, & Klinkman, 2013; Mohr et al., 2017; Rohani et al., 2019, 2020), CBT (G. Doherty et al., 2012), dialectical behavior therapy (Schroeder et al., 2018), social-emotional

curricula (Slovák et al., 2016), and mindfulness activities (Seo, Sungkajun, & Suh, 2015; Seol et al., 2017). In parallel, mental health apps have become increasingly commercially available and promote techniques such as managing worries, mindfulness exercises, and sleep hygiene techniques (e.g., (Fabulous, 2020; Shleep B.V., 2020)). While no such research focuses on UMY, the types of interventions delivered by technological concepts and commercially available apps overlap with interventions recommended for UMY that focus on individual skills.

Research in the field of mental health technology focuses on many areas outside of the refugee context. Researchers have identified different needs for different groups of people when designing mental health technologies; for instance, Cheng et al.'s participatory design research targeting men's mental health suggested using a self-improvement approach and more masculine tone through a football-themed app (Cheng et al., 2018, 2020). Lattie et al. (2020) identified factors influencing students using mental health technologies, such as a lack of time and framing tools for well-being. In low-middle income countries (LMICs), mental health technologies have been identified as a possible solution to overcome access barriers, such as with the help of online, text-messaging, and telephone services (Naslund et al., 2017). At the same time, research has highlighted barriers to using technology in these LMICs, such as the lack of access to mobile devices and internet (ibid.) and culturally appropriate language (Pendse et al., 2019). These findings indicate the importance of investigating the different requirements of different populations, such as UMY, so that they can use the mental health technologies successfully.

Not researching different requirements of different populations could even lead to negative consequences; for instance, Pendse et al. (2019) highlight that the increasing research on the requirements for mental health technologies within high socioeconomic contexts could result in these technologies only meeting the needs and preferences of populations within a high socioeconomic status. They argue that this effect could exacerbate the treatment gap between those of higher socioeconomic status and those that are marginalized. Socioeconomic issues and marginalization thus influence how technology contributes to overcoming access barriers, which underlines the importance of investigating how to design mental health technologies for UMY since this marginalized population might otherwise suffer from the exacerbation of the treatment gap.

Technological solutions seem to be promising for making mental health services and support more accessible for UMY. Although no research has targeted UMY, other work explored potential solutions on related interventions in other areas. Previous research showed, however, that different contexts and groups of people have different needs and challenges to use mental health technology, and it is thus essential to study the specific design needs for this population. To better understand which design needs might be crucial when designing mental health technologies for the refugee context, the next section summarizes the main needs requiring consideration when designing technological solutions in the refugee context. The subsequent section then summarizes the current state of the art of the few recent research projects on mental health technologies in the migrant and refugee context.

### Technology in Refugee Context

In the refugee context, the UN Refugee Agency (UNHCR, 2016) emphasized that NGOs and service providers need to better utilize existing connectivity provided by the ubiquity of mobile apps and thereby maximize the impact of their services. Evidence shows that mobile technologies are a useful source of information and connectivity, particularly for this population including UMY (Coles-Kemp & Jensen, 2019; Coles-Kemp, Jensen, & Talhouk, 2018).

In HCI, a growing body of research has investigated how technology could support access to services in the refugee context; for instance, Talhouk et al. (2016) identified contextual and cultural factors that require consideration when designing technology to improve access to antenatal care services. Brown and Grinter (2016) explored how messaging platform looping-in interpreters could mediate communication between refugees and volunteer workers and help to overcome language and cultural barriers. Baranoff et al. (2015) investigated how a system using near field communication (NFC) tags could support refugees in navigating their environment and thereby enable using public transport and keeping medical appointments. Similar to research regarding mental health technologies, HCI researchers noted challenges and barriers when technology is the primary means of enabling access in the refugee context; for instance, unfamiliarity with the systems and lack of technical skills can exclude refugees from accessing information and services, such as employment and public transport in countries with a highly computerized infrastructure (Sabie & Ahmed, 2019). It is thus essential to research the design of technological solutions for the refugee context to develop technology that supports the refugee population and to prevent the development of solutions that create additional barriers.

### Mental Health Technology in Refugee Context

In recent years, the topic of mental health technologies for refugees and migrants has gained increasing interest especially in the field of psychology. Technology-based mental health interventions focus on promoting individual strengths and factors; for instance, intervention modules were CBT-based (Röhr et al., 2021; Shala et al., 2020; Spanhel et al., 2019; Burchert et al., 2019) and included interventions for behavioral activation (Shala et al., 2020), sleep hygiene, and coping with rumination and worrying (Spanhel et al., 2019). The different research focused on different refugee and migrant populations, such as Syrian refugees (Ashfaq et al., 2020; Sijbrandij et al., 2017) and Albanian migrants (Shala et al., 2020), but not on UMY. One study of a toolkit assessing stressors focused on migrant youth and families located across six continents (Davis, Winer, Gillespie, & Mulder, 2021). Researchers emphasized many benefits and potentials of mental health technologies, such as overcoming access barriers (Ertl et al., 2020; Rubeis, 2021), reducing mental health stigma (Röhr et al., 2021), enabling anonymous access (Rubeis, 2021), being time and place independent (Rubeis, 2021), and supporting scalability (Davis et al., 2021) and high feasibility due to high usage of mobile phones (Ashfaq et al., 2020). In addition, barriers were identified such as costs (Ertl et al., 2020), technical literacy and barriers (Burchert et al., 2019; Disney, Mowbray, & Evans, 2021), language (Ertl et al., 2020), length and pace of interventions (Burchert et al., 2019), and trust in the tools (Ertl et al., 2020). Based on these studies' findings, researchers suggested design needs and directions for future research, which I further discuss in *Chapter 9* in relation to the findings of my thesis.

The increasing number of studies in recent years, mainly in the field of psychology, shows that mental health technologies in the refugee context regard a growing area of research and an important and timely topic; however, the research is still young. Researchers focusing on resilience mechanisms and non-technology interventions for UMY have emphasized this population's uniqueness and needs, but no research to date has focused on mental health technologies for UMY.

## 2.5 Summary

Resilience is the ability to adapt in the face of adversity. While UMY face many risk factors that increase the likelihood of negative mental health outcomes, protective factors increase the

likelihood of a positive mental health outcome. Interventions promoting individual skills and coping strategies could promote these protective factors. Many researchers have highlighted the need to focus on social-ecological and multidimensional aspects in the context of migrant youth and in general; however, to date, the individual approach is mainly evaluated to promote resilience in the context of migrant youth and in general.

In addition, UMY face barriers to accessing mental health services and support. Technology could support overcoming these access barriers and delivering mental health interventions that meet the needs of UMY. In the field of mental health technologies, researchers have explored technological solutions delivering interventions similar to those recommended for UMY to promote individual resilience skills. In the field of refugees and HCI, study findings indicate that technological solutions could contribute to making services more accessible for refugee populations. In the fields of mental health technologies and technologies supporting refugees in non-mental health areas, however, researchers identified that if technologies do not meet the needs and requirements of different contexts and populations, technological solutions would impose new barriers.

In recent years, a few research projects mainly in the field of psychology have investigated mental health technologies in the context of refugees and migrants. These projects underline that despite many opportunities and benefits, it is crucial to understand the barriers and requirements for refugees to use mental health technologies. The growing body of research on mental health technology and refugees shows the topic's timeliness and importance. In addition, there is a clear need to research how to design technological solutions promoting resilience, especially for UMY due to population's vulnerability and unique needs. This research project thus explores how resilience development for UMY could be supported with the help of technology. The next chapter describes the context and asylum process since this knowledge informed the choice of methodology, which is presented after the next chapter.

CHAPTER 3

# Setting Up the Context

## 3.1 Chapter Overview

This thesis includes an individual project as part of a four-year Innovation Training Network (ITN) – Technology-Enabled Mental Health for Young People (TEAM) funded by the European Union's Horizon 2020 program under the Marie Skłodowska-Curie actions initiative. This training network focuses on different challenges of technology-enabled mental health services for young people. The individual project of this thesis focuses on vulnerable groups among young people, particularly UMY. Due to the high number of refugees arriving there in 2015[1], this project was located in Vienna, Austria.[2] In addition, as part of the ITN project, a secondment was mandatory; thus, during the research project, I also conducted interviews in London, UK with two psychologists who work with UMY to understand which psychological support they provide. This training network thus set a framework for this project by defining the location and initial problem space.

This chapter describes the context and asylum-seeking process in Austria based on findings of the current literature since they informed the choice of methodology, the study design, and choice of stakeholders who participated in the different studies. The chapter first overviews the asylum-seeking process and different statuses, the assignment to different care infrastructures, and the regulations for access to education and occupation. The chapter thereby describes when and how UMY are connected to different stakeholders such as professional support workers (e.g., social workers, teachers) and mentors.

Parts of this chapter were previously published in conference proceedings "Supporting the Supporters of Unaccompanied Migrant Youth: Designing for Social-ecological Resilience" (Tachtler, Michel, et al., 2020) and "Unaccompanied Migrant Youth and Mental Health Technologies: A Social-Ecological Approach to Understanding and Designing" (Tachtler et al., 2021).

[1] Austria is one of the places in the EU where many people arrive when following the Eastern Mediterranean route to the EU, and it was the fourth-largest receiving country of asylum-seekers in the EU in 2015 (Eurostat, 2021b).

[2] All studies occurred from 2017 until the end of 2019.

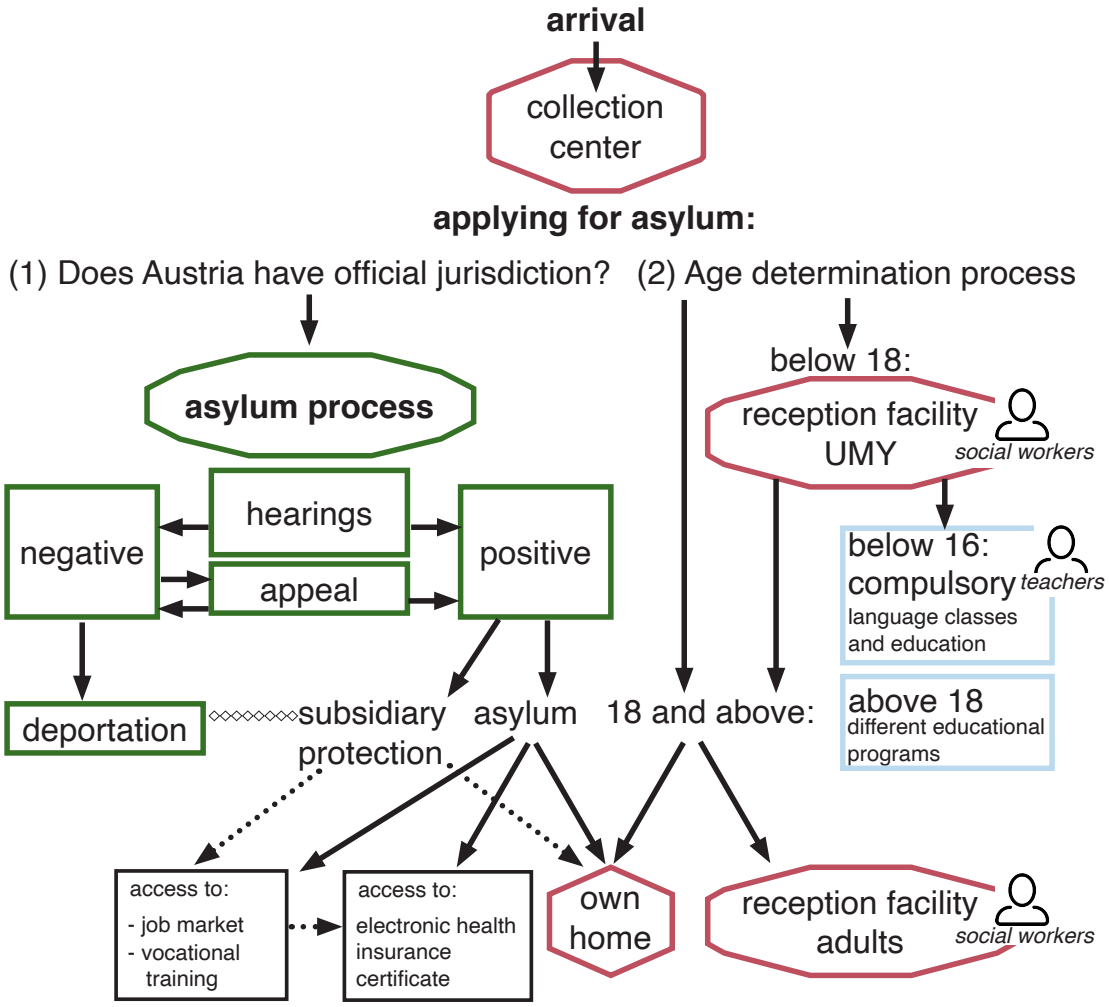



Figure 3.1: Simplified overview of asylum process in Austria in 2020.

## 3.2 The Asylum-seeking Process and Residence Status

The asylum-seeking process plays a determining role in UMY's lives. Figure 3.1 gives a simplified overview of the asylum process and access to accommodation and education corresponding to the status of the UMY.

Upon arrival to Austria, asylum-seekers of all backgrounds and age groups including UMY must apply for asylum and stay at a collection center until officials determine jurisdiction (Asylkoordination, 2016, 2019). UMY must stay at the collection center until receiving the results of the age determination process (Hochwarter & Zeglovits, 2016), which includes a radiological examination (Koppenberg, 2014) and should prove whether the asylum-seeker is a minor or not.

The asylum-seeking process consists of several hearings where UMY must prove their right to asylum. According to brochures by Asylkoordination Österreich (2016, 2019), the asylum-seeking

process results in different possible types of residence status:

1. negative (i.e., rejected application);
2. subsidiary protection (i.e., acquire a residence permit valid for one year with the possibility of prolongation);
3. and asylum (i.e., asylum status is granted to the applicant).

In cases of a negative answer, asylum-seekers can take legal steps to try to prevent their deportation (Asylkoordination, 2016, 2019). In Austria, there is no systematic information available on the average duration of the asylum process for UMY; however, according to NGOs and experts, the final decision often requires up to two years, and thus many UMY reach adulthood during the asylum-seeking process and lose protection as a minor (Koppenberg, 2014).

## 3.3 Access to Accommodation, Care, and Education

The residence state (e.g., granted asylum or subsidiary protection) and age of UMY dictate which kinds of care and accommodation benefits they can access (Bassermann & Spiegelfeld, 2018).

### 3.3.1 Accommodation

If UMY are determined to be aged between 14 and 17, they leave the collection center and are assigned to a reception facility for UMY (Asylkoordination, 2016; Bassermann & Spiegelfeld, 2018), which is responsible for caring for and supervising all UMY (Koppenberg, 2014); thus, social workers care for UMY at this reception facility. Some UMY must live in emergency quarters or with foster families due to the high demand for/lack of sufficient accommodations (Hochwarter & Zeglovits, 2016), and UMY often must change their accommodation if, for instance, NGO-driven accommodations must cease operations (Fritsche, Glawischnig, & Wolfsegger, 2019). Upon turning 18, UMY must not only leave their current accommodation, but they also become fully responsible for their welfare, education, asset management, and legal representation (Bassermann & Spiegelfeld, 2018). When UMY have to leave the reception facility for minors, they have to move to reception facilities for adults or individual organized accommodation (for which UMY must pay themselves). In a few places in Austria, some NGOs organize reception facilities for adult UMY (Koppenberg, 2014). The regulations and lack of accommodations for UMY lead to the issue that the momentary accommodation of UMY does not reflect where they wish to live (Hochwarter & Zeglovits, 2016).

### 3.3.2 Care and Health Support

According to a report on UMY's situation in Austria by Koppenberg et al. (2014), UMY have access to basic medical care, including public hospitals, psychological treatment, and medication. Depending on the asylum status and employment, UMY also receive an electronic health insurance certificate that is needed for all consultations and treatments. The report gives the example that UMY with subsidiary protection only receive an electronic health insurance certificate if they have employment. In addition, the report found that extra costs for specialist treatments such as dental care and physiotherapy hinder UMY from accessing preventative and primary care. Although local NGOs such as Hemayat offer free psychotherapeutic support, according to their website (2021), the demand for support is much higher than their available resources. Another

report identified that the waiting lists for public and private institutions offering psychological counseling support are long in Austria (e.g., up to a one-year waiting period) (Bassermann & Spiegelfeld, 2018).

### 3.3.3 Education and Occupation

After spending time at the collection center, the asylum-seeking legal policies have implications regarding the education and employment opportunities accessible by UMY. Education and employment policies impose strict conditional mechanisms for accessing education and jobs, which are also dependent on asylum status and age. In a report on UMY in Austria, Bassermann et al. (2018) describe that school-aged (6-15 age-old) UMY receive special status, which allows them to attend language classes for two years; however, at the age of 16, UMY lose this status and access to education. In addition, until being granted asylum or subsidiary protection, they are not legally allowed to access vocational training or employment. The report also highlights limited educational programs tailored to the needs of UMY.

### 3.3.4 Support Through Different Initiatives

As UMY flee without parental support, some NGOs organize volunteer support workers to act as mentors through mentoring programs. These organizations actively seek volunteers to act as mentors and buddies for UMY. In Vienna, Austria, mentoring programs are organized by NGOs such as Viel Mehr für Alle (2021), Connecting People (2016), Integrationshaus (2021), and Patenschaft für Alle (2021). The design of each mentoring program differs; for instance, in Viel Mehr für Alle, volunteers can choose between different types of buddies, such as a *"work:in buddy"* to help guide UMY with seeking a job or a *"trust buddy"* to accompany UMY for at least a year and aim to be there for the youths in the long-term and build a trust relationship with them. According to the websites of the mentoring programs Viel Mehr für Alle (2021) and Connecting People (2016), a program coordinator gets to know the volunteer in an initial meeting or workshop. The NGOs exchange with local reception facilities and programs who enroll UMY in the mentoring programs, and the program coordinators working at NGOs match volunteers to UMY. Before and during the program, mentoring programs offer a few training programs (e.g., basics about the asylum law) and the option to contact their program coordinators in case of questions.

Besides the mentoring programs, many local NGOs and initiatives offer services and programs for asylum-seekers or people with an asylum status; for instance, organizations offer legal advice (Asyl in Not, 2021; frida, 2021), provide educational programs (Deutsch Ohne Grenzen, 2021; Prosa, 2021), or help seek an apprenticeship (lobby16, 2021). Other organizations aim to support the integration of young asylum-seekers and refugees by offering free-time activities such as rugby or crafting activities (Refugees.Wien, 2021).

## 3.4 Summary

In this chapter, I presented a description of this context by first overviewing the asylum-seeking process and different results. The result and status of the asylum process and the assigned age determine the type of accommodation, education, and care infrastructure of UMY, which shows that multiple factors impact the everyday life and contacts of UMY and thus also the stakeholders of this research project. In addition, many diverse organizations, including NGOs and stakeholders such as professional support workers (e.g., social workers, teachers) and mentors engage in the care

of UMY. As part of this thesis, I engage with UMY and professional support workers and mentors during the data collection process. The next chapter describes the philosophical underpinnings and research design choices of the studies conducted in this complex context.

CHAPTER 4

# Methodology and Research Approach

This chapter describes the methodology followed in this PhD project. I start by situating this work within the constructivist design tradition and describing key arguments for applying a RtD approach. I then describe which kind of knowledge is constructed through applying the constructivist and RtD approaches. In addition, I explain how I used specific methods as part of the data collection and analysis processes as well as ethical aspects. I also describe which criteria informed and helped assess the quality of this research project.

## 4.1 Methodological Approach

This thesis situates in the field of Human-Computer-Interaction and follows the third paradigm (Harrison, Tatar, & Sengers, 2007; Harrison, Sengers, & Tatar, 2011). In the third paradigm, knowledge is situated and constructed collaboratively by people in a specific context and situation, and knowledge production is interpretive. This thesis investigates how resilience development for UMY could be supported with the help of technology by adopting constructivist and RtD approaches (in particular a constructive design research and field approach (Koskinen, Zimmerman, Binder, Redstrom, & Wensveen, 2011)).

### 4.1.1 Constructivist and RtD Approaches

In a constructivist stance, the reality is socially constructed (Mackenzie & Knipe, 2006; Mertens, 2005; Lincoln & Guba, 1986). The researcher needs to understand the world by understanding people's perspectives of the situation being studied (Creswell, 203). The knowledge is context-specific and situated but can be potentially transferred to another context (Frauenberger, Good, Fitzpatrick, & Iversen, 2015; Meyer & Dykes, 2020). The construction of knowledge is bound to time, the context of the study, and values that emerge from all elements that partake in the study, namely the researcher, people, and systems (Lincoln & Guba, 1986).

Under this constructivist stance, I followed a RtD approach, which means applying design practices as the method of inquiry to develop knowledge and theory (Zimmerman, Stolterman, & Forlizzi,

2010). I followed a constructive design research (Koskinen et al., 2011) to imagine new realities and build them to determine whether they function. I constructed concepts for potential design solutions which navigate and bridge context-specific constraints, theory, technological constraints and possibilities, and dream aims (cf. Stappers et al. (2017)[1]). As part of this constructive design research, I followed the methodological direction of *the field*, which is one of three methodological directions suggested by Koskinen et al. (2011). This approach focuses on understanding specific contexts, where the future design will be situated, people, their lives, and practices and mainly adopts approaches from the social sciences and combines them with design approaches such as co-design workshops.

As a researcher, I bring my values and experiences to the situation, which influences the knowledge production of this thesis. My personal experiences also shape these values and experiences; for instance, I am a mentor of a female UMY in Vienna, and when I lived in Sweden before my PhD studies, the reports by a friend leading homes for UMY in Sweden provided insights into how challenging it is for the staff to support UMY in coping with mental issues. These experiences motivated me to conduct this research. Using a constructivist approach, the sense-making process was influenced by and benefited from this experience.

The research of this thesis was also informed by a participatory-world view, which means that knowing happens in relation of knowing by acquaintance, by meeting and by participation in the presence of what is there (Heron & Reason, 1997). This participatory-world view also entails the aim to democratize research and design and empower future users (Bratteteig & Wagner, 2016; Ehn, 1988). However, as the power of all elements of the whole research project was not completely explicitly shared and distributed among all stakeholders, including UMY[2], I do not see this thesis as a complete participatory research project. Nevertheless, the participatory-world view and participatory design approaches informed my thinking about how knowledge is (co-)constructed and the ethical and design consideration of the research study.

### 4.1.2 Reasons for Constructivist and RtD Approaches

I chose constructivist and RtD approaches since they are well suited to investigate and design for the problem of this thesis, which fits the characteristics of a wicked problem as defined by Rittel and Webber (1973)[3]. As part of this thesis, multiple competing stakeholders are involved who influence the occurrence of resilience in this context, and it is confusing and unclear who these actors are, how they interplay with each other, and how this changes over time. Thus, like the characteristics of a wicked problem (ibid.), (1) the problem space of this thesis does not have a clear definition and a definitive end solution; (2) there is no immediate test of the problem; (3) and the problem of finding ways to support resilience in UMY with the help of technology is unique and might be a symptom of other problems (e.g., regarding policy and political levels).

Researchers working in the field of HCI, psychology, and health support using constructivist and RtD approaches support this argument as they also compare related problems with so-called

[1] According to Stappers et al. (2017), designers have to manage several confrontations, namely between competing or conflicting background knowledge, between theory and technology, and between dream and reality.

[2] For instance, the topic of this thesis (the focus on resilience and UMY) was predefined by the ITN project and the local stakeholders were not involved in defining the problem space from the beginning.

[3] A wicked problem is *"ill-formulated, where the information is confusing, where there are many clients and decision-makers with conflicting values and where the ramifications in the whole system are thoroughly confusing"* (Rittel & Webber, 1973). Rittel and Webber (1973) proposed 10 characteristics constituting a wicked problem.

wicked problems and argue for the need to adopt a research approach that embraces complexity and contextuality. In the fields of HCI, psychology, and health, other researchers argue that by creating an interwoven socio-material web of people and technology, designing technological solutions becomes a wicked problem as these problem spaces lack a clear definition and definitive end solution (Frauenberger & Purgathofer, 2019). Researchers in psychology and medical fields argue that embracing complexity and understanding stakeholders' perspectives and circumstances helps uncover new, culturally embedded pathways to promoting resilience with cultural and racial sensitivity (Ungar, 2004) and helps prevent the failure of technology-supported programs (Goodyear-Smith, Jackson, & Greenhalgh, 2015; Greenhalgh et al., 2017; Greenhalgh & Papoutsi, 2018). A constructivist approach enables gaining a situated and contextual understanding of this problem and embracing its subjectivity and complexity. By adopting a RtD approach, the research benefits from using design methods and the designerly way of thinking and knowing to frame and explore its messy problem and embrace the complexity (Buchanan, 1992; Cross, 2001; Koskinen et al., 2011; Schön, 1983; Zimmerman et al., 2007).

### 4.1.3 Forms of Knowledge

In RtD, different forms of knowledge are constructed that contribute to understanding and exploring solutions for wicked problems. Frauenberger et al. (2015) suggest four broad and often overlapping types of knowledge emerging from (participatory) design research – namely, the knowledge forms into the social, methodological, design, and theoretical knowledge. In this research project, knowledge across all four types emerged.

Social knowledge describes local knowledge of the social information in which the research is situated (ibid.). In this thesis, social knowledge includes a contextual understanding of the dynamics and actors of UMY's everyday context. Involving different stakeholders in this research especially enabled understanding their roles, perspectives, and values. In addition, I gained methodological knowledge by adapting and applying design methods to research the problem of this thesis and involve people with diverse backgrounds in the design process.

Design knowledge includes theoretical knowledge and ranges from abstract to particular knowledge (Löwgren, 2013; Meyer & Dykes, 2020); for instance, design artifacts developed for a specific instance of the wicked problem and specific context and group of stakeholders are a particular response to a particular situation and circumstances (Löwgren, 2013) and embodiment of knowledge (Cross, 2001). By eliciting key ideas and considerations behind the design artifact, I produced knowledge that is applicable to this particular situation and on abstraction levels beyond it (Höök & Löwgren, 2012; Löwgren, 2013). This thesis contributes intermediary forms of design knowledge (Höök & Löwgren, 2012; Löwgren, 2013) (such as a design framework, see *Section 4.3.2*). The theoretical, design, and social knowledge mutually inform their knowledge construction.

## 4.2 Research Procedure

This research project focused on two research aims: (A) gain an in-depth understanding of the context of UMY and the problem space (presented in *Chapter 5*) and (B) explore the design opportunities and requirements of technology-enabled support (presented in *Chapters 7* and *8*). Aim (A) consists of two sub-aims, namely (A1) gaining a broad understanding and (A2) detailing the actors, relationships, and challenges from the perspective of two key actors. Under the constructivist design stance, I conducted semi-structured interviews, co-design workshops,

| Research Aim | | | Study | Who? | What? | Chapters |
|---|---|---|---|---|---|---|
| **Aim A: Understanding the context and problem space** | *Aim A1: Broad understanding* | | STUDY 1: Interviews | 15 Professional support workers (social workers, teachers, mental health experts, NGO workers)<br><br>3 Mentors<br><br>5 UMY | **Aim:** Gaining a first understanding of UMY's everyday life, challenges, and current mental health support<br><br>**Activities:** 40-60 minute semi-structured interviews<br><br>**Outcomes:**<br>- Social-ecological shift<br>- The first version of a map of the social-ecological actors in this context | 5 |
| | *Social-ecological shift* | | | | | |
| | *Aim A2: Detailing the actors, relationships, and challenges from the perspective of two key actors* | **Aim B: Exploring the design opportunities and requirements of technology-enabled support** | STUDY 2: Co-design workshops with mentors | 7 Mentors<br><br>1 Professional support worker | **Aim:** Deepening the understanding of mentors' context, role, practices, and challenges<br><br>**Activities:** Co-developing a guidebook for new mentors:<br>- Collecting and categorizing advice<br>- Deepening understanding of the main categories: expectations, setting boundaries, mental health support;<br>- Mapping out phases of the mentor relationship<br>- Editing and annotating the first draft<br><br>**Outcome:**<br>- Guidebook for mentors<br>- Deep understanding of support needs and mentors' social support groups,<br>- Potential pathway and design requirements to integrate technology-enabled support to promote resilience in UMY by supporting their mentors<br>- Examples of design | 5,7 |
| | | | STUDY 3: Co-design workshops UMY | 12 UMY | **Aims:** Exploring how to integrate technological resources within UMY's social-ecological environment<br><br>**Activities**: Co-developing concepts for an app for better sleep against stress:<br>- Testing existing apps in the workshop and at home between workshop days<br>- Engaging in different design activities such as storyboarding and prototyping<br><br>**Outcomes:**<br>- Deep understanding of UMY's social-ecological environment and its interplay with technological resilience resources<br>- Potential pathway and design requirements to integrate direct technology-enabled support into UMY's social-ecological environment<br>- Examples of design | 5,8 |

Figure 4.1: Overview of methods across the different studies.

| Chapter | Research Aim | Contributing Study | Empirical Knowledge |
|---|---|---|---|
| 5 | Aim A | STUDY 1<br>STUDY 2<br>STUDY 3 | Understanding of the social-ecological context, the social-ecological actors, their relationships, and challenges |
| 7 | Aim B | STUDY 2 | Understanding of mentors' challenges, support needs, and their social support groups<br><br>Understanding of potential pathways and how to design technology-enabled design for these pathways to support UMY through supporting the supporters<br><br>Examples of design |
| 8 | | STUDY 3 | Deep understanding of the interplay of technological resources with UMY's social-ecological environment<br><br>Design suggestions on how to design technological resilience resources that integrate into this social-ecological environment<br><br>Examples of design illustrating these suggestions |

Table 4.1: Overview of the chapters presenting empirical research.

and reflexive thematic analysis to gain a context-specific understanding of UMY's situation and the possibilities and requirements for technology-enabled resilience support. This research project consisted of three studies (see Table 4.1), which contribute to the knowledge outcomes of this thesis.

### 4.2.1 Chronological Overview of Research Studies

In STUDY 1 (see Figure 4.1), I interviewed stakeholders, including professional support workers, mentors, and UMY to gain a broad understanding of the context problem space (aim A1). As part of STUDY 1, I focused on individual resilience. As discussed in *Chapter 5*, the findings of STUDY 1 pointed to the need to shift away from the individual approach. This finding had methodological implications for STUDY 2 and STUDY 3 – namely that they were designed to expand the social-ecological understanding of this context.

I conducted co-design workshops with mentors (STUDY 2) and with UMY (STUDY 3) to further investigate the actors, relationships, and challenges influencing UMY's resilience from the perspective of the mentors (STUDY 2) and UMY (STUDY 3). In addition, STUDY 2 and STUDY 3 focused on exploring the design opportunities and requirements of technology-enabled support (aim B). The data collection process of each study is further discussed in *Section 4.2.3* and *Chapters 7* and *8*, as each study design was informed by findings of the previous study.

### 4.2.2 Recruitment Process and Participants' Background

*Chapter 3* outlined organizations, such as non-governmental initiatives, and stakeholders, such as professional support workers (e.g., social workers, teachers) and mentors, who engage in the care of UMY. As part of this thesis, I engaged people from these different stakeholder groups during the data collection process.

#### Recruitment Process in General

For all studies, I recruited stakeholders through local NGOs in Vienna. I contacted NGOs and sub-organizations/teams offering reception facilities and programs for UMY such as educational programs, mental health workshops, or mentoring programs specifically for (unaccompanied) migrant youths via e-mail and follow-up phone calls. In addition, I attended events where these NGOs presented their work. Four organizations showed interest and invited a colleague and me to present the project, which covered further details and what we could offer UMY participating in the project (e.g., offering game design workshop, teaching prototyping techniques) (see the slides of the presentation in *Appendix 10.3*). Over the course of the research project, I was in contact with other organizations through local events, which then supported me in recruiting participants by forwarding invitation letters (e.g., inviting UMY). In addition, some participants invited their contacts (e.g., peer mentors or their mentees) to participate if they thought that the research study would be interesting. In total, I worked with stakeholders working for/with 10 NGOs.

To protect the participants' anonymity, I generated random codes for each participant and did not link background information to them. Participants are referred to as SW for social worker, T for teacher, P for mental health expert, M for mentor, Y for UMY, and C for program coordinator, all followed by a participant number. When I present quotes, I will note if the quote was stated during an interview (STUDY 1), the workshop series with mentors (STUDY 2), or workshop series with UMY (STUDY 3-WS1, STUDY 3-WS2).

#### Professional Support Workers

The professional support workers contributed perspectives on the everyday life of UMY since they interact with UMY in different ways due to their different professions. They were mainly involved in STUDY 1 and the recruitment process of STUDIES 2 and 3. I interviewed six social workers (SW 1-6), three teachers (T1-3), three mental health experts (P1-3), and three program coordinators who worked for two mentoring programs (C1-3) (see professions Table 4.2). The social workers and teachers worked at reception facilities or educational programs for UMY. One social worker (SW5), who wrote his master's thesis on the mentoring relationship, also attended STUDY 2 regarding the co-design workshops with mentors.

#### Volunteer Support Workers: Mentors

Volunteers acting as mentors participated in STUDY 1 (semi-structured interviews) and STUDY 2 (co-design workshops). Table 4.3 lists the mentors and details about the mentoring relationship, including the duration of the mentor-mentee relationship. Three mentors participated in STUDY 1, and two mentors participated in STUDY 1 and STUDY 2.

I invited all mentors from STUDY 1 to the co-design workshops of STUDY 2, and I invited additional mentors to participate in STUDY 2 via mentoring programs. I contacted NGO staff who were not involved in supporting me as a mentor to prevent as much as possible that my role as a mentor did not influence the research project's recruitment and participation.

| Profession | Number of interviewees | Participant code |
|---|---|---|
| **Social workers** | | |
| Homes < 18 | (4) | SW2 SW3 SW5 SW6 |
| Follow-up care | (1) | SW1 |
| School | (1) | SW4 |
| **Teachers** | | |
| Project leader | (1) | T1 |
| Liaison teacher | (1) | T2 |
| Photovoice WS | (1) | T3 |
| **Mental health experts** | | |
| Psychotherapist | (1) | P1 |
| Community worker | (1) | P2 |
| Clinical psychologist | (1) | P3 |
| **Mentorship** | | |
| Coordinators | (3) | C1 C2 C3 |

Table 4.2: Overview of the professions of professional support workers.

| Mentor | Years of mentoring relationship | Mentee's age | STUDY 1 | STUDY 2 | | |
|---|---|---|---|---|---|---|
| | | | | W1 | W2 | W3 |
| M1 | 3 years | 19 years | x | x | | x |
| M2 | 5 years<br>2 years | 21 years<br>18 years | x | x | | |
| M3 | 10 years<br>2 years | above 18<br>20 years | x | | | |
| M4 | 1.5 years | 17 years | | x | | |
| M5 | 3 years | 18 years | | x | | x |
| M6 | 3 years | above 18 | | x | | x |
| M7 | 11 years<br>3 years ago, lasted 1.5 years<br>1 year | 24 years<br>20 years<br>20 years | | | x | x |
| M8 | 4 years<br>disappeared after 1.5 years<br>unknown | above 18<br>under 18<br>above 18 | | | x | x |

Table 4.3: Overview of mentors' experience as a mentor. Columns W1-3 show if the mentors participated in workshop days 1, 2, or 3 of STUDY 2.

| Research study | | Participants' codes |
|---|---|---|
| STUDY 1 | | Y1, Y2, Y3, Y4, Y5 |
| STUDY 3 | WS 1 | Y3, Y5, Y6, Y7, Y8 |
| | WS 2 | Y1, Y9, Y10, Y11, Y12, Y13, Y14 |

Table 4.4: Overview of UMY participating in STUDY 1 and STUDY 3. Rows WS1 and W2 show if UMY participated in the first or second workshop series of STUDY 3.

### UMY

UMY participated in STUDY 2 (semi-structured interviews) and STUDY 3 (co-design workshops with UMY). Table 4.4 gives an overview of how many UMY participated in the studies. In the interviews of STUDY 1, five male UMY participated. In the co-design workshops of STUDY 3, in total 12 UMY participated. Three UMY participating in the interviews (STUDY 1) also participated in the workshops (STUDY 3) (Y1, Y3, Y5), and three mentees who participated in STUDY 3 have mentors who participated in STUDY 1 and/or 2.

I recruited UMY aged 18-24 years, based on the WHO definition of youth (World Health Organization, 2020) and the EU consent procedure (European Union Agency for Fundamental Rights, 2020). I only recruited UMY 18 and older so that they could decide to participate in the study without an assigned legal guardian deciding for them. All UMY who participated in this research project were male. I aimed for gender balance, which was not possible since most UMY are male. During the recruitment process, NGOs also reported that female UMY are difficult to reach and rarely participate in public life.

Most participants were from Afghanistan or were Afghans who lived in Iran (three in STUDY 1, 11 in STUDY 3), two from Somalia (one in STUDY 1, one in STUDY 3 ), and one from Russia (one in STUDY 1). Except for one person, all UMY were still in the asylum-seeking process, where some UMY had received a negative answer while others were awaiting their hearing. All participants had received some German language learning classes and could communicate in German and English to varying extents. All participants had lived in Austria for about 2 to 3.5 years except one participant that had lived in Austria for 6 years. The UMY lived at different accommodations, with some at residential homes for UMY and adult UMY or self-organized shared homes. One participant had recently finished his apprenticeship after STUDY 1. The rest attended classes for migrant youths in the evening to catch up on education to finish compulsory school or a high school diploma or were enrolled in regular school programs.

### Consent Procedure

In all studies, I followed the consent and data storage procedures recommended by the EU and TEAM project (see details on ethical considerations in *Section 4.4*). The informed consent sheets were translated into simple German and Dari. In addition, I asked the social workers and mentors to read and discuss the informed consent sheets together with their supervised UMY/mentees before participating in the study to ensure that they understand their rights and the data collection and storage procedures.

### 4.2.3 Data Collection Overview

#### STUDY 1: Semi-structured Interviews

Interviews are a common method to collect data as part of phases of the design process (Rogers, Sharp, & Preece, 2011; Tomitsch et al., 2018) and to elicit perspectives (Sanders, 2002). Researchers in the refugee context highlighted the importance of including NGO workers and everyday staff while preparing the research project (A. Brown & Choi, 2018). I conducted semi-structured interviews at the beginning of this research project to gain an overview of this context, which helped include stakeholders from different NGOs with different roles in the research to thereby enquire individual perspectives of many stakeholders. The semi-structured interviews consisted of open questions, which covered topics on the everyday life of the UMY and their challenges and current mental health support (see details in *Appendix 10.3*).

Most interviews took place at interviewees' homes or workplaces, which included a clinic, schools, reception facilities for underage UMY, mentors' homes, and offices of different NGOs organizing mental health workshops, mentoring programs, and follow-up care for UMY above 18. The interviewee could always end the interview, each of which lasted between 40 to 60 minutes. All interviews were audio-recorded and transcribed, except for four interviews where the interviewee felt uncomfortable with an audio recording. If the interviews were not audio-recorded, I took notes. The interviews were mainly one-on-one. For four interviews, the interviewees wished to be interviewed in pairs (together with a colleague, mentor, or flatmate living at the same reception facility). For six interviews, a colleague was present who took additional notes.

#### STUDIES 2 and 3: Co-Design Workshops

Through facilitating co-design workshops, researchers create space to actively involve people in the design process (Vines, Clarke, Wright, McCarthy, & Olivier, 2013). Researchers have conducted co-design workshops to involve different stakeholders in the design process in research in the fields of refugees and HCI (A. Brown & Choi, 2018; Bustamante Duarte, Brendel, Degbelo, & Kray, 2018; Krüger, Weibert, de Castro Leal, Randall, & Wulf, 2021; Talhouk et al., 2019) and mental health technologies (Hetrick et al., 2018; Pretorius, McCashin, Kavanagh, & Coyle, 2020; Wadley, Lederman, Gleeson, & Alvarez-Jimenez, 2013). As part of this thesis, I conducted co-design workshops with mentors (STUDY 2) and UMY (STUDY 3) since the outcome of STUDY 1 indicated the pivotal role of mentors in promoting resilience in UMY. These workshops with mentors (STUDY 2) aimed to deepen the understanding of practices and challenges of this critical support group who have a trust relationship with the UMY. The co-design workshop series with UMY (STUDY 3) aimed to explore how mental health apps need to be designed as a resource capable of integration within UMY's social-ecological environment.

Workshop techniques to involve people in the design process require adaptation to the unique characteristics of a specific project (Sanders, Brandt, & Binder, 2010) and the needs and characteristics of participants (Vines et al., 2013). In the refugee context, researchers highlighted that creating a safe space and flexibility in the design process are essential to support and ease participation (Bustamante Duarte et al., 2018; Bustamante Duarte, Ataei, Degbelo, Brendel, & Kray, 2019; A. Brown & Choi, 2018; Talhouk et al., 2019). Both STUDY 2 and STUDY 3 took place in a seminar room at the university since this space was as neutral as possible and was not supervised by professional support workers. This location was especially important for the co-design workshops with UMY (STUDY 3) to create a safe space for the participants (Bustamante Duarte et al., 2018, 2019; A. Brown & Choi, 2018).

In addition, Talhouk et al. (2019) identified the value of a dialogical approach and how it could be supported by artifacts such as dialogue cards. The traditional outline of co-design workshops supports this dialogical approach, where a common technique to elicit knowledge includes activities involving shared artifacts which build a centerpiece for creating a dialogue (Bødker & Iversen, 2002; Sanders et al., 2010; Vines et al., 2013).

In the co-design workshop of this research project, these shared artifacts were a guidebook for newcomer mentors (STUDY 2) and an app for UMY for sleeping better and handling with stress (STUDY 3). In *Chapters* 7 and 8, I further describe these co-design workshops since the outcome of STUDY 1 informed the design of STUDIES 2 and 3.

## 4.3 Analysis Process

To make sense of the data collected in these studies, I used reflexive thematic analysis (Braun & Clarke, 2012, 2013, 2020).

### 4.3.1 Thematic Analysis

After finishing the data collection process of each study, I conducted reflexive thematic analysis (Braun & Clarke, 2012, 2013, 2020), which is a qualitative data analysis process that supports researchers in identifying patterns across a dataset. This approach views the researcher's subjectivity as a resource for the analysis process (Braun & Clarke, 2020), which is also a key quality of the methodological approach of this thesis.

Across all the studies, I collected different forms of data based on the nature of the studies. In STUDY 1, the dataset contained (1) notes made during and after the interview, (2) the transcripts comprising the audio-recorded interviews, and (3) the interviews' notes that were not transcribed. In STUDY 2, the dataset contained the transcripts of the audio-recorded workshop discussions. In STUDY 3, the dataset contained pictures of the design artifacts, the transcripts of audio-recorded workshop discussions, and participants' notebooks. The design artifacts and discussion complemented each other because the participants justified design choices during design activities (e.g., creating storyboards of using the apps in their home), which triggered discussions among the participants about their living circumstances.

For each analysis, I followed the six phases described by Braun and Clarke (Braun & Clarke, 2012, 2020):

1. *Data Familiarisation & Writing Familiarisation Notes.* I initially read transcripts, created an initial list of ideas about the data contents, and discussed potential codes and themes within the research team.
2. *Systemic Data Coding.* I coded the datasets manually and inductively using Dedoose/ MAXQDA, which led to potential topics.
3. *Generating Initial Themes from Coded and Collated Data.* I grouped the codes into initial themes. As part of this phase, I facilitated mapping activities and discussions with my supervisors and/or co-researchers who were present at the interviews or workshops (e.g., see Figures 1 and 2 in *Appendix 10.3*).
4. *Developing & Reviewing Themes.* I reviewed whether the themes accurately represent the data by comparing the themes against the data.

| Study | Initial Themes | Theory | | Chapter |
|---|---|---|---|---|
| STUDY 1 | • UMY have to deal with many external and internal stressors that are caused by the political situation.<br>• Political regulations hamper UMY from following their preferred coping strategies and thus coping with their stressors.<br>• Different adult support workers play an essential role in promoting resilience but face many barriers. | **Resilient Child** (Bernard, 1993, 1995) | • Different individual attributes of a resilient child: social competence, problem-solving skills, critical consciousness, autonomy. | 5 |
| | | **Social-ecological Resilience** (Ungar, 2008, 2011, 2012a 2012b; Ungar et al., 2013) | • Ideal characteristics and interplay between support systems to create a facilitative environment that promotes resilience.<br>• Different types of systems in the social-ecological system. | 5,6 |
| STUDY 2 | • Mentors struggle with dealing with their expectations.<br>• Mentors have challenges regarding providing direct mental health support to their mentees (e.g., reading symptoms, discussing mental health).<br>• The quality of coordinating care influences mentors' ability to provide support.<br>• Building networks and exchanging information and resources between mentors and experts support overcoming challenges. | | • Ideal characteristics and interplay between support systems to create a facilitative environment that promotes resilience.<br>• Different types of systems in the social-ecological system. | 7 |
| STUDY 3 | • The everyday ecology (daily structure, living environment, social ecology) interplays with using the app.<br>• Each UMY has different experiences, knowledge, motivation, and interests.<br>• There are infrastructural barriers (technological barriers, physical barriers) to using the app and following advice. | | • Role and characteristics of resources to create a facilitative environment that promotes resilience.<br>• Different types of systems in the social-ecological system. | 8 |

Figure 4.2: Mapping different resilience theories, studies, and initial themes of each study.

5. *Refining, Defining & Naming Themes.* I named identified themes and described them by using illustrative quotes for the theme. As part of this phase, I presented the themes with their description and illustrative quotes in a document, and I discussed the content of the document with my colleagues and supervisors.

6. *Writing the Report.* In the form of publications, I wrote reports that tell the data's story and thereby connect the themes to a narrative.

I used software for the analysis, namely Dedoose 8.2 to 8.3.20 in STUDY 1 and MAXQDA 2018 and 2020 Anlaytics Pro in STUDIES 2 and 3 (see screenshots in *Appendix 10.3*).

I started each analysis process by coding inductively, which means from the "bottom-up" without trying to fit the data into a pre-existing coding frame. As the studies progressed, I used different resilience theories to understand how the themes of the thematic analysis relate to resilience theory (see overview in Figure 4.2). As part of the analysis of STUDY 1, my focus remained on individual resilience, and I used the theory by Bernard (Bernard, 1993, 1995) regarding the individual attributes of a resilient child. I mapped the different attributes to how different support groups promote resilience in UMY (see details in *Appendix*, *Section 10.3* and Figures 3 to 6). The structure resulting from this mapping process indicated the importance of the social ecology in providing support; thus, the data analysis led to a shift from an individual to a social-ecological perspective, which led to the analysis shifting from a more inductive to a more deductive approach. I thereafter started to draw on the theory of the social-ecological model of resilience (Ungar, 2008, 2011, 2012a, 2012b; Ungar, Ghazinour, & Richter, 2013). As part of phase six of the analysis of STUDY 2 and STUDY 3, I deductively grouped the initial themes under different types of systems based on the theory of the social-ecological model of resilience (ibid.). More details about the findings and how they relate to different theories are discussed in the following chapters (see *Chapters 5* to *8*).

### 4.3.2 Development of the Social-ecological Design Framework for Resilience Promotion

One contribution of this research project is the social-ecological design framework for resilience promotion in UMY, which is a conceptual framework whose purpose is to support designing technology-enabled resilience support for UMY. Like interaction design frameworks that are often based on the findings from user studies (Rogers et al., 2011), the framework of this thesis is also based on the empirical findings of STUDIES 1-3. To develop a framework, researchers need to be selective and *"decide which variables are most important, which relationships are likely to be most meaningful, and, as a consequence, what information should be collected and analyzed"* (Miles, Huberman, & Saldana, 2014, p. 20). Miles et al. (2014) recommend developing conceptual frameworks graphically rather than textually as this obliges the researcher to specify categories for discrete phenomena, map interrelationships, and create one visualization for all data. The development process of the design framework was visual and graphical and focused on mapping the relationships between different elements of the collected data, which also informed decisions about which factors and relationships are important to highlight in this context. I developed the design framework as part of each study's analysis and sense-making process (see *Chapters 6*, *7*, and *8*, *Section 9.3*).

## 4.4 Ethical Considerations

Because this research occurred in a very sensitive context, ethical considerations played an important role across all studies. An independent Ethics Advisory Board (EAB) was established by the Office for Gender Competences at the TU Wien due to the lack of ethics committee at TU Wien. This EAB consisted of three members: Mark Coeckelbergh (Department of Philosophy, University of Vienna), Nicole Föger (Head of Administrative Office, Austrian Agency for Research Integrity), and Hannes Kolar (Head of Psychological Services; Municipal Department 11, City of Vienna). These experts brought broad expertise in ethics and technology, research integrity, and the local and mental health situation of UMY in Vienna, Austria.

The support and advice by the EAB originated through reviewing an ethics proposal, ethics amendments for further studies, and meetings. The process was chaired by Marjo Rauhala (Research Ethics Coordinator, Office for Gender Competence TU Wien).

Because the project of the Horizon 2020 ITN program also contained a secondment abroad at Anna Freud National Centre for Children and Families in London, together with my colleagues, I also applied for ethical approval at the University College London, UK, for studies in the UK. This thesis only uses interviews with psychologists and mental health experts working with UMY in the UK, which I interviewed as part of my secondment.

The following section overviews the most pressing ethical concerns and reflections to show how these considerations influenced the study design.

### 4.4.1 The Well-being of UMY

This project included risks that a participant has a mental illness and that the project's title and focus could lead to misunderstandings that this project provides mental health support. I, thus aimed to clarify that this project does not provide mental health support and that the focus of the studies and questions was on UMY's present lives. My colleagues and I did not ask about previous traumatic experiences. We were prepared to react if traumatic experiences and mental health issues rose and could refer participants to professional support.

### 4.4.2 Protection of the Safety and Privacy of the UMY

Due to the high vulnerability of UMY, all studies prioritized creating a safe setting (see details on creating safe space in *Section 4.2.3*) and protecting UMY's privacy and safety as part of the data/information collection, storage, and sharing process. UMY might be scared that shared information becomes used against family and friends in their former home country or influences their asylum-seeking process. I communicated that the potentially gathered data is anonymized and not shared with governmental authorities. In addition, there was a medium risk that professional support workers and mentors may inadvertently violate the privacy of UMY, which could lead to capturing identifiable or unnecessary personal information. If my colleagues and I thought inappropriate confidential information was being shared, we immediately interrupted and asked the participant not to convey such information. Any recorded information that could be used as an identifier, such as full names, was redacted or replaced by pseudonyms during transcription and was not repeated in subsequent documentation. Raw audio and video material was securely stored for the duration of the project and treated as confidential according to the TEAM project data storage guidelines, which demands high levels of security when handling such data, including advanced encryption. Publications presented no information about the participant

that might identify the UMY, such as by linking the participant's code to former home country and age.

### 4.4.3 Language and Understanding in/of the Informed Consent Procedure and the Studies

There was a high risk that participants did not fully understand instructions during the workshop, the purpose of our study, and their rights and possible risks in the context of our study. For this reason, we utilized dual language support and multi-modal mechanisms and recruited participants who can communicate in German to a certain extent. The informed consent sheet was translated into their native language (Dari) and simple German. Professional support workers and mentors were involved in preparing the workshop to support overcoming and preventing misunderstandings.

### 4.4.4 Long-term Engagement in Changing Environment

Ethical considerations influenced the outline of the research project and the timing of engagement with the UMY. Because I had to go abroad for a 6-month study and losing contact with people is emotionally challenging for the UMY, based on recommendations of the EAB, I postponed the active involvement of UMY until after my 6-month stay and only conducted interviews that focused on their everyday lives. In addition, I aimed to communicate the timeline of the project across all studies in a transparent manner. To maintain contact with stakeholders from STUDY 1 (which occurred before the stay), I provided a digital information letter about the progress of the project and the next steps.

Another challenge was the ongoing change in the everyday lives of UMY. The recruitment procedure and study design allowed irregular attendance and a drop-out. Due to the 6-month stay, I lost contact with some NGOs that I worked with at the beginning of this research project.

### 4.4.5 Working in an Under-resourced Context

There was a risk of impacting professional support workers' and mentors' time. My studies were driven by their choice of time and location to minimize impact. In addition, the studies using co-design studies were designed to develop resources for this context, namely a guidebook for mentors.

### 4.4.6 Benefits for Participants

I aimed to design the study in a way that the UMY, professional support workers, and mentors benefit from engaging in this research project, which influenced the study design; for instance, UMY's involvement in the co-design workshops gave them the opportunity to learn about design processes. To make their engagement visible and provide proof of the gained knowledge, we provided certificates for each participant, and we wrote letters of recommendation to support their asylum-seeking process in some instances. STUDY 2 with mentors provided a platform for the mentors to exchange and meet mentors with an interest in the topic of mental health and identified their mentees' high support needs. At these meetings, they learned from others how they could further support their mentees.

### 4.4.7 The Well-being of the Researcher

HCI researchers working in the refugee context identified that empathizing with their research participants is emotionally challenging (Talhouk et al., 2018). In other research fields in HCI, researchers noted that the design researchers' invisible emotion work could have negative implications for their wellbeing (Balaam et al., 2019; Moncur, 2013). There was thus a risk of harm to me as a researcher through emotional stress. My primary strategy to cope with this was exchanging about emotional challenges with other HCI researchers working in refugee contexts. In addition, I followed self-care strategies and had access to a counselor at TU Wien.

## 4.5 Quality Criteria

In RtD, Meyer and Dykes suggested that research needs to be informed, reflexive, abundant, plausible, resonant, and transparent (Meyer & Dykes, 2020). These quality criteria contrast with post-positivist quality criteria such as generalizability, reliability, or validity, which apply well to tame problems but not wicked problems which require engaging with the situated complexity, uniqueness, and interrelations interplay as well as using the subjectivity of the researcher and stakeholders to gain valuable insights (see *Section 4.1.2*); therefore, I oriented my work towards the quality criteria for RtD. In *Section 9.6*, I critically reflect on how well my research was informed, reflexive, abundant, plausible, resonant, and transparent.

## 4.6 Summary

In this chapter, I presented the arguments for adopting constructivist and RtD approaches for this research. I then explained these approaches and presented the types of knowledge that contribute to this thesis, namely social, methodological, design, and theoretical knowledge. I also presented the methods used within the constructivist and RtD approaches to collect data, namely semi-structured interviews and co-design workshops, and to analyze the empirical data using reflexive thematic analysis. This chapter concluded by presenting the quality criteria that informed the design of the research studies.

CHAPTER 5

# Understanding the Enablers and Barriers to Promoting Resilience

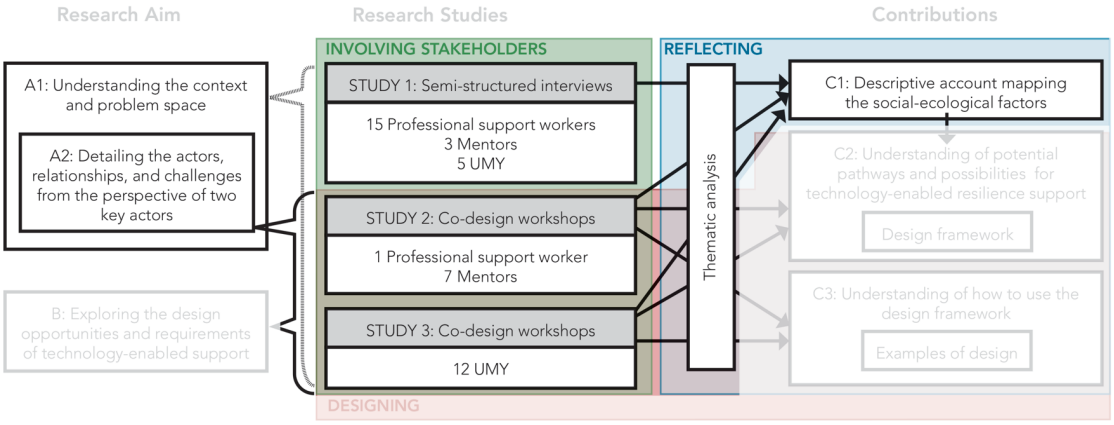



Figure 5.1: Research elements and contributions presented in this chapter.

## 5.1 Chapter Overview

This chapter responds to RQ1: *How does resilience promotion currently occur in the everyday context of UMY?*. The chapter thereby focuses on the first research aim, *gaining an in-depth understanding of the context of UMY and the problem space* (see (A1) and (A2) in Figure 5.1). This leads to contribution *(C1) Descriptive account mapping the social-ecological factors of UMY's context* (see (C1) in Figure 5.1). The data form a basis for developing the map of UMY's social-ecological environment (presented in *Chapter 6*), which will help to identify technological intervention points for resilience support. The findings of this chapter thus contribute to developing the *Design Framework (C2)*.

This chapter uses findings from STUDIES 1 – 3 since they all contributed to understanding social-ecological enablers and barriers to promoting resilience in UMY (see Figure 5.1). The structure of this chapter is based on the themes that emerged from the analysis of STUDY 1 (see Figure 4.2 in *Chapter 4*). STUDY 2 and STUDY 3 contributed to a more holistic description of this context by complementing the findings of STUDY 1 and including more voices of UMY.

The findings represent a more detailed version of published conference papers and reports. The findings from STUDY 1 and STUDY 2 have been published in "Supporting the Supporters of Unaccompanied Migrant Youth: Designing for Social-ecological Resilience" (Tachtler, Michel, et al., 2020) and "Designing for Technology-Enabled Social-Ecological Resilience"(Tachtler, 2020). The findings from STUDY 3 have been published in "Unaccompanied Migrant Youth and Mental Health Technologies: A Social-Ecological Approach to Understanding and Designing" (Tachtler et al., 2021). In addition, findings across all studies have been published in the reports of the TEAM project "D2.1 Framework and design implications for technology development" (Tachtler, Slovák, & Fitzpatrick, 2020).

## 5.2 Chapter Introduction

This chapter presents the social-ecological factors of this context that support or hinder the resilience of UMY. The first part describes the external and internal stressors of UMY, their resilience strategies, and barriers to putting these strategies into practice. The second part presents various adult supporters that are key to enabling resilience promotion of UMY through different roles; for instance, while professional support workers support the UMY in their area of expertise in the short term, volunteers acting as mentors build a long-term trust relationship. In addition, this chapter summarizes the most significant challenges and needs in providing mental health support and thereby promoting resilience in UMY.

## 5.3 Factors Interplaying with Individual Resilience of UMY

The findings show that different factors interplay with the individual resilience of UMY and that internal and external stressors hamper resilience promotion in UMY. While UMY identify strategies to cope with mental health, political regulations also hinder their ability to follow their strategies.

### 5.3.1 The Interplay of External and Internal Stressors

External and internal stressors play an essential role in the resilience promotion of UMY. Many stressors are caused by the external situation, namely the living situation of UMY, political regulations, and former experiences. Other stressors manifest internally in UMY, namely their different forms of fears, which also appear through physical symptoms. External and internal stressors are intertwined since many external stressors cause or increase internal stressors.

#### External Stressors Caused by Political Situation

UMY face external stressors caused by their political situation and related political regulations. Due to the asylum-seeking process, UMY must handle the threat and uncertainty of the outcome.

Their future in the host country is entirely unclear, and a significant threat is that they could become deported at an unforeseen time. This situation affects UMY mentally; for instance, a mentor described how this threat of deportation affected her mentee's mental health, explaining that *"when (...) you (the mentee) had no asylum status, you had panic (...) and once you said to me that you rather kill yourself before you have to go back"* (M2, STUDY 1). At the workshops, UMY also discussed the high impact of the outcome of the asylum-seeking process on their mental health. A participant stated that *"to know if you get granted asylum or not"* was the most important thing for his mental health (Y6, STUDY 3-WS1). In addition, the interviewed professional support workers such as social workers and teachers also pointed out that the asylum-seeking process and related uncertainty were among the most significant stressors. They explained that challenges and tasks of the asylum-seeking process (e.g., long and uncertain waiting period and inability to leave the system) hindered UMY from coping with this stressor. At the interviews, a teacher explained: *"The biggest stress is the asylum-seeking process, and this is difficult as they cannot get out of this"* (T2, STUDY 1).

UMY also had to navigate the paperwork and bureaucracy of applying for asylum, which caused additional frustration and challenge in coping with the stress and uncertainty of the asylum-seeking process. The bureaucracy was so complex to navigate that even professional support workers, such as interviewed social workers who ideally supported UMY with their paperwork, struggled to navigate the paper and sought professional support: *"We (the social worker) cannot help them (with) this obscure jungle"* (SW4, STUDY 1).

In addition to the asylum-seeking process, UMY had to cope with high pressure, including time, academic, and professional performance pressure caused by the political regulations. While the UMY *"who (were) top-performing, (had) the biggest chances to stay"* (SW1, STUDY 1), only a limited number of school programs were available to UMY and accessible to them under certain conditions[1]. The interviewed UMY also described their struggle with performance pressure. They noted that learning and studying were highly time intensive and demanding. One interviewed UMY re-started attending an educational offering by the city of Vienna for migrant youth. He described how he struggled with studying: *"This was first not so good with the teachers. Then it was good and then it worsened. (...) Studying is difficult"* (Y5, STUDY 1). Another participant highlighted his lack of time for studying to achieve favorable grades: *"At the moment things (with studying) are going downhill. It is a lot (to learn), but we have less time than before"* (Y1, STUDY 1).

The pressure on UMY further increased when they turned 18 and lost their infrastructure of professional support workers and access to many educational programs. Adult UMY *"only receive(d) basic social services"* (SW2, STUDY 1) and must manage their paperwork alone without parental support or an assigned legal guardian. When UMY spoke to officials, they often faced language barriers, discrimination, and harassment and received *"completely different information"* (SW1, STUDY 1). The interviewed social workers criticized that UMY needed to become completely independent yet received little to no support, which could lead to mental health problems: *"The older they are, the lower is their chances to go to school. (...) When turning 18, they have to move to a camp or housing for adults. This is often the moment when many become depressive."* (SW6, STUDY 1).

The external situation, such as the uncertain, long-lasting asylum-seeking process and external pressure, cause many stressors and make it difficult for UMY to be resilient in their adverse situation.

[1] As described in *Chapter 3*, some programs are only accessible until UMY reached a certain age. In addition, UMY need to have sufficient grades and possess German skills.

#### Internal Stressors Caused by External Stressors

These external circumstances lead to many internal stressors, which, in turn, make coping with these external stressors difficult. In STUDIES 1 and 2, UMY communicated these internal stressors as physical symptoms and poor sleep quality; for instance, they described that they felt *"restless"* (Y5, STUDY 3-WS1) or *"nervous"* (Y6, STUDY 3-WS1) and that they struggled with *"stress in your body and brain"* (Y12, STUDY 3-WS1), problems *"coming from the head"* (Y6, STUDY 3-WS1), and *"thoughts of the past"*. They also explained that they suffered from *"extreme sleeping problems"* (Y5, STUDY 1) (SW2, STUDY 1).

Fear is reflected across different internal stressors. UMY, their professional support workers, and mentors listed different forms of fear that dominate the everyday life of UMY, such as fear of having to return to their country of origin, losing an opportunity, and failing. The reasons for these extreme fears included uncertainty and performance pressure; for instance, one teacher reported how they observed the fear of UMY who applied to an educational program for UMY and previously dropped out from other programs: *"At the placement interviews, some jittered and panicked as they were afraid they would not be accepted (to the program) because they cannot read or write"* (T2, STUDY 1).

The interviewed professional support workers observed that the fear caused by the asylum-seeking process and related pressure and uncertainty hampered the ability of UMY to concentrate and study and thus handle the performance pressure. In extreme cases, this fear led to breakdowns where UMY needed psychiatric support:

*"There are many negative asylum decisions recently, and they are often a big problem – for the motivation, the concentration, the whole learning process"* (T1, STUDY 1).

*"Then we brought him to the youth psychiatry. There he started to talk and cry and say that he cannot take it anymore – he misses his parents so much, cannot concentrate, (and) has no hope"* (SW4, STUDY 1).

The professional support workers noted that the political and uncertain circumstances hindered the UMY from coping with all the stressors and being resilient: *"In such circumstances, it is extremely difficult for UMY to continue their studies and build further what they have built up as a minor, including further develop their mental stability"* (SW1, STUDY 1). One UMY similarly explained that *"it depends on the situation and problems you have if you cannot sleep"* (Y1, STUDY 3-WS2). The external and internal stressors are intertwined and make coping difficult, especially as political regulations decide the external situation and the UMY cannot leave and influence this situation and the political regulations.

### 5.3.2 Resilience Strategies of UMY

The studies showed that UMY acquired certain knowledge of what helps them cope with these stressors and makes them feel better. Participants explained that they learned different strategies over time and learned which ones were beneficial for their mental health; for instance, one participant learned that *"to sleep for half an hour after work"* caused him to *"not be able to sleep anymore in the evening"* so now he *"immediately goes to the gym (...) and can sleep very easily"* (Y11, STUDY 3-WS2). Another participant recognized how a certain activity made him calm: *"Always when I have stress, I take paper and a pen and stick my head in it and draw – no matter what. And after a while, I am very calm. Thus, I forget"* (Y10, STUDY 3-WS2).

Externalizing negative emotions represented one strategy, but executing this strategy varied between UMY. In STUDY 1 and STUDY 3, some participants reported that they preferred

more active activities such as boxing and biking, while others preferred more calm and creative activities such as drawing and creating artwork. One interviewed UMY showed his artwork and explained: *"I have many problems with my brain and head. All these thoughts are in my head. Then I have to do something that they disappear"*(Y5, STUDY 1).

Another participant similarly *"realized that (taekwondo) helps get (his) anger out"* and before that, he *"was loud every night (and) had (...) problems with (his) social worker"* (Y1, STUDY 3-WS2).

Another group of strategies that participants discussed was spending time and interacting with peers, which supported experiencing a sense of community and a safe space. Activities such as cooking together at the accommodations and being enrolled in an association, for instance, supported creating a sense of community. According to the professional support workers, the sense of community played an important role for the UMY as they came from a collective society and now live in an individualized society[2]. The contact with these peers was established through their everyday living situation:

*"We (here in Austria) live in a more individualized society. (...) The boys in the accommodations for UMY (...) cook together. There is a very strong cohesion"* (SW1, STUDY 1).

*"How did you know people?"* - *"From the different places where I lived"* (Y4, STUDY 1).

Another strategy of UMY involved creating structure and daily routines. The participants reported that it was important to be busy and have a structure during their everyday lives. If they had nothing planned and lacked this structure, they struggled mentally and reported sleeping poorly:

*"When I do not have a plan for the next day, I cannot sleep peacefully"* (Y6, STUDY 3-WS1).

*"It is good to be busy. Not too much but have somewhere something planned. (...) a positive occupation"*(Y13, STUDY 3-WS2).

UMY developed and identified different strategies that they found helpful to cope with their situation and help them feel better (e.g., calm, more peaceful, less stressed).

### 5.3.3 Political Regulations Hindering Following Strategies

UMY also identified barriers to putting these strategies into practice. Political regulations dictate the living situation, occupation, and daily structure of UMY (see *Chapter 3*). These factors hindered UMY from pursuing their mental health strategy. At the workshops, the participants highlighted that due to the political regulations, there were two extreme cases of daily structure: Either they could not access education or the labor market and had nothing to do and thus no planned routines, or they worked long hours and struggled with keeping up with their schoolwork:

*"My roommate (...) is here for three years (...), has no fixed status and is always awake during the night and sleeps in the morning"* (Y3, STUDY 3-WS1).

*"He is already in Austria for seven years. Sometimes he works during the night, sometimes during the day. He has to work more than 40 hours. He is not yet ready with school (and) is already at school for three years. He sometimes sleeps four or five hours. He always has stress"* (Y8, STUDY 3-WS1).

[2] see Hofstede (2011) on differentiating between collective and individualized societies.

Political regulations also dictate the number of resources available for UMY as well as where, with whom, and how many people UMY lived (as they cannot choose the reception facility in which they live and resources are limited, see *Chapter 3*). The conditions of UMY's living situation also impacted whether they could follow habits and strategies promoting their well-being (e.g., practicing their favorite sport):

*"For us, no matter if you live in a reception facility or apartment - many have problems with money, or they live far away from the city. (...) I had this situation. There I could not go to the gym or do anything with sport (and) I was much more aggressive"* (Y11, STUDY 3-WS2).

The social environment at the accommodations of UMY further complicated following their habits and strategies. Many UMY lived in a *"shared flat"* (Y3, STUDY 3-WS1) or *"reception facilities"* (Y6, STUDY 3-WS1), where they shared their rooms with other UMY. Both situations offered limited private space, where flatmates and roommates witnessed the other person's routine (e.g., by hearing the noise). These circumstances created conflicts if their routines were not aligned, and the daily structure of peers' everyday lives depended on their status and political regulations. In addition, belonging to a group held such importance for the well-being of UMY that having friends was more important than satisfying to their own needs. The different routines and opinions of these essential social contacts, such as peers at the reception facilities, also created social pressure that hindered UMY from following mental health strategies, such as going to bed early to improve sleep quality and mental health or assigning roles to specific rooms such as the workplace and sleeping room. These aspects made it difficult for the UMY to follow their well-being habits and routine at their living environment when not aligned with their peers' routine at home.

One participant stated: *"I live at a reception facility with other boys. I cannot say this is my workplace, this is my sleeping room, and I do this way. My flatmates (other male UMY) are awake until around 3 am in the night. (And) they get angry at me if I do not speak or play with them. Thus, I also cannot sleep and do not make it in time for my appointment on the next day"* (Y6, STUDY 3-WS1).

Another participant explained: *"For instance, the friend (roommate), he sleeps during the day. I always disturb him when I do something, (for instance) when I make myself something to eat, then he wakes up"* (Y3, STUDY 3-WS1).

In addition, one participant explained that mental health activities were stigmatized, and his peers laughed at him when he tried yoga and meditation: *"I tried (yoga) (, and) closed my eyes and tried to think of something else, and my (male) friends laughed at me"* (Y12, STUDY 3-WS2).

Social challenges (e.g., peer pressure) and physical challenges (e.g., having space to sleep) thus affect the ability of UMY to follow their strategies due to the constraining physical conditions of their everyday living situation (e.g., cramped conditions).

In summary, UMY face different external and internal stressors. The political situations of UMY cause external stressors, which cause internal stressors and make coping with external stressors difficult. While UMY have identified mental health strategies they find useful, the external situation hinders following them and feeling well; for instance, political regulations dictate participants' living situation, occupation, and daily structure as well as shape the social and physical factors of these living circumstances (with whom they live for how long, how much space they share, and the characteristics of their living environment). These conditions limit the ability of UMY to have a healthy daily structure and follow healthy habits (e.g., meditating in a private space to sleep better).

## 5.4 The Ecology of Adult Support Groups

In addition to UMY's strategies to cope with their situation and feel better, different groups of adult supporters contribute to promoting resilience in the UMY. Each support group adopts different roles in enabling resilience promotion, which I grouped into professional support workers, physically distant social contacts, persons of trust (i.e., mentors), and indirect supporters. Despite this grouping, the support groups do not work in isolation from each other and instead interplay occurs between and within groups, which is clarified in the subsequent sections.

### Professional Support Workers' Role

Professional support workers such as teachers and social workers contribute to resilience development by supporting the educational and personal development of UMY. Organizations connect the UMY to a network of supporters who care for them professionally (see *Chapter 3* for details). As part of this research, the two main groups of professional support workers with whom the UMY interact within their everyday lives, are social workers and teachers. Social workers worked at the reception facilities and at educational programs for UMY, while teachers worked at schools and educational programs for UMY. Both adopted different roles inside their organizations; for instance, one interviewed teacher took the role of liaison teacher in addition to their subject in school lessons. At the reception facility, some social workers working were reference persons for several UMY and thus held meetings every quarter with each of the UMY. If teachers and social workers at the educational program witnessed any challenges, they would contact the reference social worker at the reception facility.

Professional support workers promoted different types of skills as part of supporting UMY in their everyday lives. First, they promoted UMY's social competence. Witnessing conversations and events during UMY's everyday lives enabled social workers and teachers to learn about current experiences and topics to discuss and re-visit UMY's perspectives on values and social interactions. For instance, an interviewed male social worker reported that UMY asked him what it meant that a girl in his class messaged him directly via social media, as such social interaction outside of the school context with a female peer was for the UMY challenging to interpret. Second, the professional support workers also promoted UMY's autonomy by developing techniques for supporting the UMY to become an adult, independent person who can cope with challenges. They aimed to challenge the UMY without overstraining them and decreasing their self-worth, which *"would be extremely contra-productive"* (SW2, STUDY 1). Third, professional support workers promoted a sense of purpose by ensuring progress in UMY's personal development by enrolling them in a course and ensuring that UMY attend *"activities to balance"* (SW2, STUDY 1) their everyday stress. Teachers aimed to create a safe space where UMY *"can forget all their problems for a short moment"* (T1, STUDY 1), *"be themselves"* (T2, STUDY 1), and *"make (their own) decisions"* (T3, STUDY 1). Professional support workers also promoted UMY's problem-solving skills. If UMY experienced challenges and struggled to think positively, professional support workers encouraged them to *"think in small steps and of goals that are achievable"* (T2, STUDY 1) and *"see positive aspects of failures"* (SW 3, STUDY 1). In addition, they re-oriented the UMY to utilize existing resources when they feel unwell. Professional support workers supported UMY in a way that contributed to developing attributes of a resilient child[3].

In addition, the professional support workers learned how to provide basic mental health support through their professional training and exchange with colleagues and supervisors. Social workers

[3] As discussed in *Section 2.2*, child attributes are social competence, problem-solving skills, critical consciousness, autonomy (Bernard, 1993, 1995), and a sense of purpose (Bernard, 1995).

working at the reception facilities witnessed UMY during their everyday lives and knew about UMY's (mental health) resources and current situation (e.g., status in the asylum-seeking process and upcoming asylum hearings). Social workers thus tried to *"give moral support"* (SW3, STUDY 1) and *"show that (they are) there for them"* (SW6, STUDY 1) when the UMY felt unwell. If the social workers noticed that UMY needed professional mental health support, they tried to connect the UMY with mental health experts; however, they faced many barriers to this goal (described in *Section 5.5.2*).

### Physically Distant Social Contacts

Another support group that influences UMY's mental health regards physically distant social contacts, which include relatives and friends who often live in their former home countries and thus, do not live physically close. The UMY maintained these physically distant relatives and friends through mobile phones (i.e., social media, messaging, and phone apps). While this continued contact was important to know about their friend and family's (mental) health status, this also caused stress for the UMY since negative news induced fears and negative emotions:

*"I do not know what is with my parents. This is my stress. I only see having a phone call as a solution (that helps to deal with the situation) because now I cannot reach them"* (Y6, STUDY 3-WS1).

*"In the morning, you should not check the news or Facebook (...) That destroys your whole day"* (Y8, STUDY 3-WS1).

*"Not seeing any bad news about refugees (helps my mental health). That you know if they did manage to cross the borders and not that they got stuck"* (Y6, STUDY 3-WS1).

Maintaining contact with physically distant social contacts is thus essential for UMY to not feel worried but also triggers stress.

### Role of Mentors as a Person of Trust

In the host country of UMY, another critical group of supporters is mentors acting as a person of trust. Unlike professional support workers, mentors care for their mentees based on a trusting individual relationship and providing individual support. Mentors who participated in this research met the mentees regularly in their everyday lives, supported them in, for example, learning German, remained in contact via phone calls or messages, and aimed to be there for their mentees in the long-term. Even if the mentees lived an independent life, they could and did reach out to their mentors (M3, M6) when needing support. At the workshops, for instance, one mentor explained that her mentee who was married and lived an independent life still contacted her when something important arose: *"If my mentee needs something, such as recently extending the subsidiary protection, it is very clear that we do that together with him"* (M6).

The mentees explained how essential mentors were for their mental health. Participants emphasized the importance of having a person who *"accompanies you in some aspects (...) in the area of work or at a hearing"* (Y13, STUDY 3-WS2) and with whom the participants could *"talk about problems"* (Y13 and Y1, STUDY 3-WS2) and *"about everything"*(Y6, STUDY 3-WS1). Mentors also observed that UMY seemed to prefer to talk to them about their problems rather than with a therapist. An interviewed mentor explained that *"(her mentee) always says: 'When I have problems, I talk to you.' "* (M1, STUDY 1).

*"The youngest (mentee) has huge psychological problems. We (and the educational institution) tried to make the offer that he goes to therapy, but then he shuts off (saying) 'It is enough if I talk to you' "* (M2, STUDY 2).

In addition, the relationship with mentors also supported promoting individual resilience skills[4] in UMY. As part of the mentoring relationship, experiencing a place *"where (the UMY) can be how they are"* (SW5, STUDY 1) promotes UMY's sense of purpose. In addition, mentees' social competencies were enhanced by getting to know the mentor's cultural and social values and observing how they *"put things into practice"* (M1, STUDY 1). UMY's critical consciousness was supported by learning that there are varying ways of doing things as well as conflicts between mentor and mentee when they were *"not trans-cultural enough"* (M2 and Y1). The interaction with the mentor helped the mentee navigate in the new, unfamiliar society and to *"find (their) own standpoint that suits (them)"* (M1, STUDY 1).

Mentors thus play an important role in supporting the mentee's resilience and well-being. For this reason, professional support workers attempted to connect the UMY with a volunteer acting as a mentor, especially before the UMY turned 18 and had to leave the reception facilities, *"as otherwise, the risk would be high that the UMY plunges into a deep mental abyss and descends (...) into the drug scene"* (SW3, STUDY 1). When UMY lived at the reception facilities, some professional support workers exchanged information with UMY's mentors; for example, the social worker warned the mentor (M4, STUDY 2) that the mentee consumed medications for mental health issues and thus may be absent so that the mentor knew how to react to the behavior.

### Indirect Supporters

Besides the supporters who directly interact with the UMY, some groups indirectly support the UMY by supporting the mentors, namely the mentoring program coordinators and the community of mentors. The interviewed program coordinators explained that they try to be present for questions and organize opportunities for mentors to share their experiences. These coordinators offered training and meetings before the volunteers started mentoring and were accessible if the mentors had questions. In addition, the coordinators facilitated events where mentors could exchange insight with other mentors as this exchange has been proven to be helpful:

*"(We) always give the volunteering mentors the advice to talk with friends and others if things overburden them too much (...) and take advantage of the mentors' meet-up (...) which however takes place sometimes and sometimes not"* (C1 and C2, STUDY 1).

Many types of support groups are involved in promoting resilience, where each adopts a different role. Professional support workers and mentors play a main part of resilience promotion, while distal social contacts and peers also influence the resilience of UMY. The next section describes how active mental health promotion occurs in this support structure and identifies challenges and gaps.

[4] As discussed in *Section 2.2*, child attributes are social competence, problem-solving skills, critical consciousness, autonomy (Bernard, 1993, 1995), and a sense of purpose (Bernard, 1995).

## 5.5 Enablers and Barriers to Promoting Resilience in UMY

The data analysis also showed enablers and barriers to promoting resilience in UMY. The following section gives an overview of these enablers and barriers since they will help to identify potential pathways for technology-enabled resilience support (RQ2) (see *Section 6.4*).

### 5.5.1 Enablers to Promote Resilience

While UMY identified that externalizing negative emotions helped coping with their situation, UMY could also benefit from engaging in professional mental health services and interventions regularly and over a longer period to promote long-term improvements and stability; for instance, a long-term, regular engagement in mental health services and interventions enables individual cognitive changes[5], while the mental health support offered in the form of a brief workshop only *"focuses on the basics because it takes much more time to achieve an individual cognitive process"* (P1, STUDY 1).

In addition, a highly functioning and trusting relationship enables discussing mental health and delivering mental health interventions. SW3, for instance, remarked that before motivating the young people to shift from black-and-white thinking to more positive thinking, a relationship with the UMY must first be built since *"a change only happens within the basis of a relationship"* (SW3, STUDY 1), and only then can conversations *"happen on an emotional level"* so that the UMY *"understand for what they change things"* (SW3, STUDY 1).

Trust is especially important to discussing mental health problems. The mentoring program coordinators thus decided that when holding a meeting with a mentee who showed symptoms of mental health problems, they invited a psychologist whom the mentee knew from school to join: *"The psychologist was a person who was also a few times at the school, so there was already a little bit trust there"* (C2, STUDY 1).

A trusting relationship thus builds ideal conditions for promoting resilience in UMY. In an ideal case, UMY would engage regularly and in the long term in mental health interventions to feel better and build resilience.

### 5.5.2 Barriers to Engage UMY in Mental Health Services

Three main challenges hinder UMY's engagement in services: (1) mental health stigma, (2) UMY's lack of time and stability, and (3) mismatch between UMY's expectations and preferences for mental health support and the available support.

#### Mental Health Stigma

Professional support workers such as social workers faced challenges in engaging the UMY early and regularly in mental health interventions outside of the clinical context and in convincing them to accept professional mental health support. One reason for UMY's rejection of this offer was that mental health is stigmatized. Mental health and illnesses have a *"negative connotation"* (SW4, STUDY 1), because in UMY's former home countries, people with mental illnesses *"get committed*

[5]Interventions promoting cognitive changes are a common intervention approach to promote resilience, see *Section 2.2.2*.

*to an insane asylum"* (SW2, STUDY 1). This negative image led to the UMY struggling to *"accept (psychological) support"* (C2, STUDY 1). Even in group workshops, which seemed to be more accepted than individual therapy, according to the experience of an interviewed therapist, only *"model students"* and *"not the ones who need it the most"* (P1, STUDY 1) attended.

Professional support workers were aware of this stigma and suggested bypassing it by using less stigmatized terms and by normalizing mental health: *"We have a lot of the challenges related to stigma and understanding of mental health. So (..) we do not use the word mental health, instead of stress, because everyone feels stressed"*(P3, STUDY 1).

UMY also preferred to discuss mental health problems indirectly and generally since mental health is taboo, which becomes apparent in the following dialogue in which participants explained to the workshop facilitator how to address mental health problems:

- *"You think, I am crazy or cannot sleep well or what?"* (Y6, STUDY 3-WS1).

- *"When somebody is so, then you should not say that so directly. You have to say that in a general way"* (Y3, STUDY 3-WS1).

This conversation shows that addressing mental health problems too directly could cause conflicts and a person to feel attacked. This underlines that handling mental health needs and challenges demands a high sensitivity.

### UMY's Lack of Time and Stability

Even when the UMY initially accepted psychological support, they did not attend regularly and instead terminated therapy; for instance, one interviewed social worker reported that one UMY in his care *"found a therapy place (and then) only went to the therapy twice before quitting it"* (SW6, STUDY 1). One reason was that the situation of UMY was not ideal for attending therapy, where due to the asylum-seeking process and uncertainty, they were *"not mentally resilient and it (was) easier to repress things"* (SW2, STUDY 1). Attending mental health therapy would cause additional stress as UMY often lacked spare time or were stressed by upcoming appointments. The therapy would be an additional appointment in their calendar and UMY *"(had) many appointments and then attending therapy additionally (got) too much"* (SW2, STUDY 1).

### UMY's Expectations and Preferences for Mental Health Support

In addition, UMY did not recognize the need to attend regularly, or contacting professionals was too great of a step for their mental health problems in their perspective. One interviewed social worker, for instance, explained that UMY did not understand that several therapy sessions are required to feel better: *"Many believe they go once to the therapist and all their problems are gone"* (SW2, STUDY 1). In addition, a psychologist working at the clinic imagined that their daily contacts would be ideal for UMY to discuss their mental health problems since they might be more approachable than mental health professionals: *"UMY might not be enough stressed to worry people and contact mental health services"*(P3, STUDY 1).

A mismatch thus occurs between the available mental health support and UMY's preference for help-seeking approaches. The mental health stigma and UMY's notion of mental health support mean that UMY does not regularly attend mental health services regularly or seek help through official pathways (e.g., contacting mental health services).

### 5.5.3 Constraints for Professional Support Workers Set by the Political Systems

To provide the support needed by UMY, the professional support workers, representing regular and daily contacts of UMY, would need more time and be responsible for fewer UMY. Political regulations, however, limited the ability of the interviewed professional support workers to offer a caring environment that fulfills the needs of UMY. First, the care ratio was too low since UMY would *"need intensive care, not a 1:15 care"* (SW2, STUDY 1). Due to the lack of human and financial resources as well as the significant time-consuming administrative work, professionals lacked sufficient time for one-on-one meetings and to provide sufficient support for the UMY: *"If I had more money and resources, I would assign each reference person more hours so that they can make once a week a trip or meeting with their UMY outside of the reception facility"* (SW2, STUDY 1).

Second, the UMY lacked a secure and stable long-term perspective of their care situation since they had to move out when they turned 18 due to political regulations or when accommodations unexpectedly end (see *Chapter 3*). The social workers consequently avoided developing an individual trust relationship with UMY to ease the separation. Professional support workers could not change these circumstances and must handle poor *"circumstances which (they) do not set but are decided for (them)"* (SW3, STUDY 1). Political regulations thus decrease the professional support workers' ability to promote resilience in UMY.

### 5.5.4 Mentor's Challenge of Providing Mental Health Support

As described in *Section 5.4*, mentors build a trusting relationship with their mentees, and UMY prefer to talk to their mentors about their problems; however, the process of getting to know UMY and gaining their trust could require more than one year. In addition, mentors often had to endure challenges; for instance, a social worker working closely with mentors explained: *"(Mentors) first have to earn their trust (...) The mentors need to have met the mentee a few times and also endured a few things"* (SW5, STUDY 1). One reason is that UMY struggled to trust other people due to previous negative experiences. UMY's support needs and situation impact the process of getting to know each other. For instance, the mentor (M7) explained that needing help with a rejected asylum application forced her mentee to open up quickly and talk about personal matters.

In addition, being the main contact to discuss mental health problems made the mentors feel overwhelmed. The mentors described how stressed they felt in these situations and how they could not keep an emotional distance if their mentees struggled mentally. For instance, when a mentor and her mentee discussed the stress caused by the asylum process, the mentee told her that *"before he gets deported, he rather kills himself"* (M2, STUDY 1), and this was *"quite shocking"* (M2, STUDY 1) for the mentor. Another mentor explained that during phases when her mentee had many problems (e.g., with the police), she realized that she needed support beyond discussing the situation: *"There are phases where I realized I would need more (support). But (then) it does not help when I talk about it"* (M1, STUDY 1).

*Section 5.4* described that mentoring program coordinators try to support mentors through these challenges (e.g., by offering meet-ups for mentors), but coordinators lack time and resources. In addition, even when providing these meet-ups and similar events, not all mentors attend, and these events do not provide the support the mentors need; for instance, one interviewed mentor attended a meet-up and explained that the exchange at the meet-ups did *"not give (her) strength"* (M1, STUDY 1). She further explained that getting to know other mentors' *"very complex stories,*

*(...) questions and situations"* did not work well at the setting of the meet-up; instead, the interviewed mentor found it *"very supportive to exchange 1:1 with two other mentors privately"* (M1, STUDY 1), which highlights a currently insufficient support structure for mentors.

The element of trust differentiates UMY's relationship with their mentor and professional support workers as well as builds an essential basis for resilience promotion. In contrast to professional support workers, mentors provide individual support and build a long-term trust relationship, where UMY partially trusts them with their worries. While UMY views their mentor as the daily contact to talk to and sometimes as mental health support, the mentors feel overwhelmed by this role and are not trained for it.

## 5.6 Reflection: Individual vs Ecological Resilience

This chapter focuses on RQ1: *How does resilience promotion currently occur in the everyday context of UMY?*. The presented findings show how the political situation of UMY causes mental health stress and makes it difficult for UMY to follow their preferred coping strategies. Mental health stigma and the lack of stability and time discourage UMY from engaging in professional mental health services, which UMY also do not view as the primary contact when seeking support. The findings instead highlight the importance of UMY's social ecology, such as mentors and professional support workers, for promoting resilience in UMY; however, they also face challenges such as a lack of resources that are mainly caused by political regulations.

In *Chapter 2*, I discussed different theories on resilience promotion and argued that an individual resilience approach might be best suited for this context and research focus since (1) the individual approach is most commonly used and evaluated in general and in the refugee context, and (2) existing mental health technologies provide evidence that the individual approach is translatable into the digital context. The findings show, however, that the individual approach to promoting resilience might not be well suited for UMY's context and for helping to overcome current challenges in promoting resilience. Instead, the findings indicate that it is essential to view resilience promotion with a social-ecological lens in this context.

First, viewing resilience development as a responsibility of the individual would further pressure the UMY. The findings show that UMY must handle many internal and external stressors in their everyday lives. The internal stressors are caused by external stressors, which are caused by the political situation over which UMY lack impact and control. Making UMY responsible for coping with these stressors will further pressure the UMY since they cannot change and influence the situation.

Second, UMY know what would help them feel better (e.g., having a daily structure and routine); however, political regulations dictate their daily structure and living situation and hinder pursuing these strategies and improving their individual resilience. This hindrance would also pressure UMY when making them responsible for coping with their situation since their preferred coping strategy does not work.

Third, the findings show a structure of professional support workers and mentors, which has an essential role in promoting resilience in UMY. These professional support workers and mentors support individual competencies of UMY, including social competence, problem-solving skills, critical consciousness, autonomy, and a sense of purpose, which promotes their individual resilience. Such ways of supporting could thus be mapped to attributes of a resilient child defined by (Bernard, 1993, 1995) (see *Section 2.2* and *Appendix, Section 10.3*). This indicates that professional support workers and mentors play a crucial role in promoting individual resilience in UMY. However,

these support groups must also handle many barriers and challenges to promoting resilience. Political regulations (e.g., regulations determining the care ratio and the stay lengths of UMY at a reception facility) mainly cause barriers for professional support workers. Mentors face challenges, are overwhelmed, and cite a need for more support. Resilience in UMY can thus be supported by supporting this structure of professional support workers and mentors.

These findings highlight the need to shift away from the individual approach, which is aligned with arguments suggesting that in the context of migrant youths, mental health support needs to occur in a multidimensional and social-ecological manner (Eruyar et al., 2018; Fazel & Betancourt, 2018; Hodes & Vostanis, 2019). The current approaches to promoting resilience in this context better align with the social-ecological resilience approach (Ungar, 2008, 2011, 2012a, 2012b; Ungar, Ghazinour, & Richter, 2013). In the next chapter, I further discuss how the social-ecological model of resilience (ibid.) provides a theoretical lens for this context and contributes to answering RQ2: *What are the possibilities for technology in this space?*.

## 5.7 Summary

This chapter described the enablers and barriers to promoting resilience in the everyday context of UMY and their social ecology and presented arguments regarding why it is important to adopt a social-ecological approach for promoting resilience in this context. Instead of using theory on individual research promotion, resilience theory using a social-ecological approach might be more relevant for this context. The next chapter builds on this understanding of UMY's social-ecological context and maps different social-ecological systems to identify potential pathways for integrating technology-enabled support in this context.

CHAPTER 6

# Mapping the Social-ecological Context

## 6.1 Chapter Overview

In the previous chapter, I explored RQ1: *How does resilience promotion currently occur in the everyday context of UMY?*. This chapter builds on the deep understanding of UMY's context and contributes to answering RQ2: *What are the possibilities for technology?*. Based on the empirical findings presented in the previous chapter, this chapter populates a map of the social-ecological context for the context of UMY, thereby contributing to *C1: Descriptive mapping of the social-ecological factors of UMY's context*. In addition, this map builds the underlying structure of *C2: The design framework*, which will help identify potential pathways to integrating technology-enabled resilience support in this context. Some contents of this chapter and elements of the maps have been published in "Supporting the Supporters of Unaccompanied Migrant Youth: Designing for Social-ecological Resilience" (Tachtler, Michel, et al., 2020), in "Designing for Technology-Enabled Social-Ecological Resilience"(Tachtler, 2020), and in "Unaccompanied Migrant Youth and Mental Health Technologies: A Social-Ecological Approach to Understanding and Designing" (Tachtler et al., 2021). In addition, findings across all studies have been published in the reports of the TEAM project "D2.1 Framework and design implications for technology development" (Tachtler, Slovák, & Fitzpatrick, 2020).

## 6.2 Theory Behind the Social-ecological Model of Resilience

As discussed in *Section 5.6*, we need to shift from viewing resilience development as a responsibility of the individual, meaning the UMY in this case, towards promoting resilience from a social-ecological approach. The social-ecological model of resilience (Ungar, 2008, 2011, 2012a, 2012b; Ungar, Ghazinour, & Richter, 2013) proposes theoretically how the reciprocal processes between a person and environment lead to social-ecological resilience promotion. In addition, the model describes how social-ecological systems ideally interplay to successfully promote resilience in

children and youths. The model thus helps better understand and structure the social-ecological processes that contribute or hinder resilience promotion. For these reasons, I chose this model as a theoretical basis for mapping the types of systems in UMY's social-ecological context. Before populating this model for UMY's context, I first describe the types of systems and their ideal interplay.

### 6.2.1 The Different Types of Social-ecological Systems

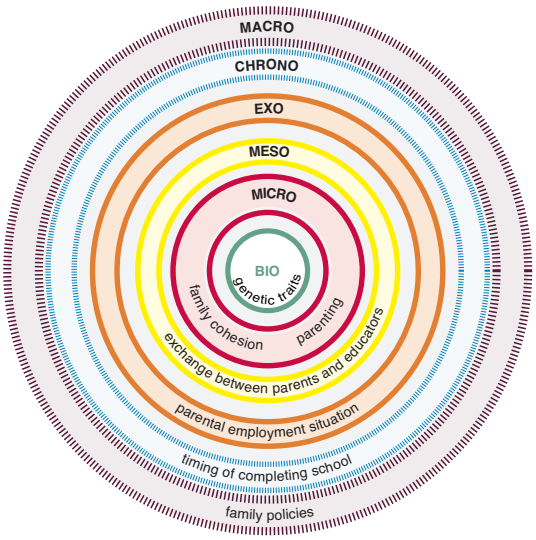



Figure 6.1: Exemplary visualization of the social-ecological systems by Bronfenbrenner.

In the social-ecological model of resilience, six systems adopt different roles when supporting people in promoting resilience (Ungar, Ghazinour, & Richter, 2013). Ungar et al.'s definitions of these systems are based on Bronfenbrenner's (1979) definitions of systems influencing the development of a child and are further developed for resilience promotion mechanisms (see exemplary visualization of the social-ecological systems in Figure 6.1).

The *bio-system* describes characteristics of the individual such as genetic traits and psychological characteristics such as the personality of the child/youth. Reciprocal interactions with the environment shape these individual factors; for instance, environmental factors such as the lack of well-funded educational systems impact the brain development of children and youths (Ungar, Ghazinour, & Richter, 2013).

The *micro-systems* represent roles, activities, and interpersonal relationships of social support systems that directly interact with the child/youth, which includes family processes such as family cohesion and parenting, which help buffer stressful life events (ibid.).

*Meso-systemic processes* describe the interactions between micro-systems. In the ideal case, different micro-systems build a network fostering effective exchange between these micro-systems, which contributes to better mental health outcomes of the cared child/youth. One example of meso-systemic processes is a well-functioning exchange between educators and parents of a child (ibid.).

The *exo-system* concerns the many distal social interactions that indirectly influence the quality of meso- and micro-systemic interactions and thereby affect the resilience of the child/youth. An example is social networks between parents and their social contacts as well as parents' employment situation such as long commutes and low wages. These factors could impact the quality of the micro-system parent-child interaction (ibid.).

The *chrono-system* describes the socio-historical dimension influencing the resilience of the individual. Chrono-systemic factors could be the development of a child over time, past events, historical context, or long-term relationships. The timing and economic situation when a child/youth completes school, for example, might impact the success of their job search (ibid.).

*Macro-systemic* factors influencing the resilience of the individual and social system include the culture and family support policy. It is essential to view these macro-systemic factors in their context to be able to design measures to promote resilience; for instance, child labor might bring benefits to children and provide a source of resilience, such as through self-efficacy and access to material resources (ibid.).

### 6.2.2 The Ideal Interplay between Social-ecological Systems

In addition to defining the types of social-ecological systems that play a role in resilience promotion, the social-ecological model by Ungar (2008, 2011, 2012a, 2012b) and Ungar et al. (2013) articulates how the social-ecological systems need to interplay to promote resilience in the child/youth. They differentiate between a facilitative environment where individuals' needs are met and a non-facilitative environment that poses barriers to well-being. The following aspects reflect how facilitative the environment is:

1. Capacity of individuals, families, and communities to navigate psychological, social, cultural, and physical resources that sustain their well-being (Ungar, 2008, 2012a).

2. Capacity to individually and collectively negotiate for these resources to be provided and experienced in culturally meaningful ways (Ungar, 2008).

The availability and accessibility of resources play a central role in supporting the capacity to navigate and negotiate these resources (Ungar, 2012a). In addition, exo- and meso-systems especially contribute to increasing the quality of the social-ecological environment. Meso-systems exchanging resources could contribute to enhancing individual growth and thereby mitigate risk exposure (Ungar, Ghazinour, & Richter, 2013).

## 6.3 The Social-ecological Context of UMY

As discussed in the previous chapter, social-ecological factors such as policies cause external and internal stressors and make it difficult for UMY to follow their preferred resilience strategies. In addition, support groups play a crucial role in promoting resilience in UMY. These findings point towards a need for a social-ecological shift. To identify potential pathways to integrate technology-enabled support, I mapped the social-ecological factors presented in the previous chapter by further developing the mind maps developed as part of the analysis of STUDY 1 (see Figures in *Appendix, Section 10.3*). I thereby compared how the empirical findings and identified support groups of UMY correspond to social-ecological systems defined by Bronfenbrenner (1979) and Ungar et al. (2013). I then mapped interrelations between the systems by comparing the influences and interplay that, according to the empirical findings, impact resilience promotion of UMY in this context with the ideal interplay defined by Ungar (2008, 2012a) and Ungar et al. (2013). The resulting types of social-ecological systems are presented in the next section before the subsequent section details the interrelationships and interplay between systems. Figure 6.2 displays a map of the different social contacts and interrelationships interplaying with the resilience promotion of UMY. In contrast to the more common method of visualizing the systems by Bronfenbrenner (1979) (see Figure 6.1), the visualization of UMY's context aims to highlight the interplay and exchange between the social systems.

| Types of systems | Definition by Ungar et al. | In UMY's context |
|---|---|---|
| Bio-system | Characteristics of the individual such as genetic traits and psychological characteristics | UMY's interests, individual strategies to address their psychological needs, individual internal stressors. |
| Micro-system | Roles, activities, and interpersonal relationships of direct social support systems | Social systems which regularly interact with UMY and influence their resilience. This research categorizes the identified social contacts into four types of micro-systems: *person of trust*, *professional support workers*, *everyday living situation*, and *physically distant*. |
| Meso-system | Interactions between micro-system | The exchange between different support workers of UMY to exchange information about UMY's developments and coordinate support. In this research, the micro-system *person of trust* and *professional support workers* build the meso-system *support workers*. |
| Exo-system | Distal social interactions that indirectly influence the quality of meso- and micro-systemic interactions | Social contacts who do not interact with the UMY but with their mentors (micro-system *person of trust*) and indirectly support UMY's resilience by supporting the mentors. These social contacts include the mentoring program coordinators and other mentors and build together the exo-system *mentor's ecology*. |
| Chrono-system | Time dimension | Changes or experiences that UMY and their social-ecological environment make over time (before and during their flight/migration to Austria, currently in the post-migration phase, and in the future). |
| Macro-system | Culture, values, policies | Macro-systemic factors are political regulations that influence the resilience and everyday life of the UMY and social support systems. These regulations are connected to the asylum status. An additional macro-systemic factor is the cultural background of UMY's bio-system and social-ecological systems. |

Table 6.1: Overview of definitions of social-ecological systems by Ungar et al. and how these systems instantiate in the everyday context of UMY in Vienna, Austria.

### 6.3.1 The Systems

I identified how the social contacts and interactions presented in the previous chapter correspond to the definitions of bio-, micro-, meso-, and exo-systems. In addition, the previous chapter presented developments and factors that fit the criteria of chrono- and macro-systems of the social-ecological model of resilience (Ungar, Ghazinour, & Richter, 2013). Table 6.1 overviews the definitions of the social-ecological systems by Ungar et al. (2013) and how they are instantiated for the social-ecological context of UMY.

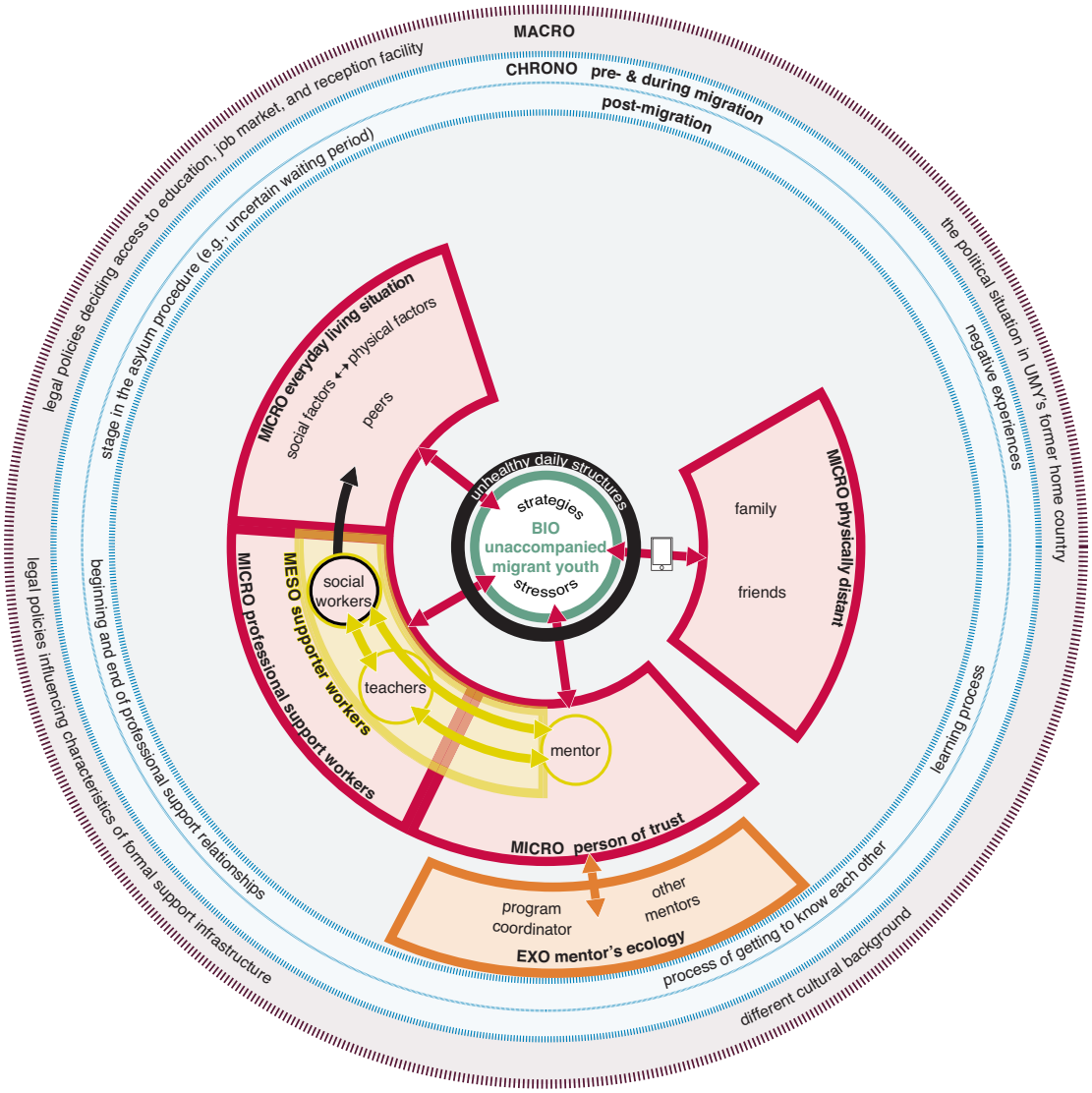



Figure 6.2: The figure is mapping out social-ecological systems and their interplay in the context of UMY.

### The Bio-system: UMY's Individual Factors

In this context, the *bio-system* (see Figure 6.2, BIO unaccompanied migrant youth) comprises the UMY's individual factors, stressors, and strategies for addressing bio-physical-psychological needs and their stressors. As described in Chapter 5, an example of individual stressors is extreme fear caused by the uncertainty of the outcome of the asylum application. Examples of individual coping strategies are externalizing negative emotions, being occupied, and having a structure during everyday life. These coping strategies differ between UMY, who identified that different strategies to externalizing emotions work for them (e.g., boxing vs. drawing).(Unhealthy) daily

structures of UMY influence if and how UMY are able to apply these strategies.

### The Micro-systems: UMY's Direct Support Systems

The findings presented in the previous chapter revealed types of support systems that UMY directly interact with and that influence their resilience. These systems build the *micro-systems* of UMY, which I categorized as follows. The differentiation is based on the different roles in supporting resilience in UMY. The type of relationship (e.g., trust, informal or professional) and the context of their regular interaction (e.g., via phone or in the accommodation) influences these roles:

- *Person of trust:* an adult person in the new home country with whom the UMY build trust. In the context of this thesis, the adult person is a volunteer that acts as a mentor through different types of mentoring programs (see Figure 6.2, MICRO person of trust). As presented in the previous chapter, trust is essential for UMY to dare to share their problems (in particular mental health problems) with the adult support worker;
- *Professional support workers:* professional support workers with whom UMY interact through their reception facilities and educational program (e.g., social workers and teachers) (see Figure 6.2, MICRO professional support workers). As described in the previous chapter, these support workers care for UMY professionally. They promote different skills and provide basic mental health support that they learned through their professional training;
- *Everyday living situation:* this micro-system describes the social and physical factors of the everyday living situation of UMY. As described in the previous chapter, in the everyday living situation, UMY establish contact with peers, which could contribute to a sense of community. In addition, this is the space where UMY most potentially apply their mental health strategies and impacts UMY's daily routines. Thus, peers in the everyday living situation also negatively impact UMY's resilience as they also influence how well UMY can apply their preferred mental health strategies and hinder the UMY from following healthy daily routines. The constellation of social contacts depends on different factors. As described in Chapter 3, UMY below 18 live in a reception facility for minor UMY. When turning 18, they have to leave this reception facility and either move to a reception facility for adult UMY or a shared flat. If UMY live at a reception facility for minors, social workers (micro-system professional support workers) moderate the social interplay to some extent (see Figure 6.2, MICRO everyday living situation);
- *Physically distant:* social contacts who live in UMY's former home countries and with whom the UMY usually maintain contact through their phones (i.e., friends and family) (see Figure 6.2,MICRO physically distant). As described in the previous chapter, while the continued contact with these social contacts is important for UMY, it also causes stress for the UMY since negative news induces fear;

Overall, each system has a different role in promoting resilience and interacts with UMY in various situations and ways.

### The Meso- and Exo-systems: UMY's Indirect Support Systems

Indirect support systems also influence the resilience of UMY and adopt a similar role as the exo- and meso-systems defined by Ungar et al. (2013). As presented in the previous chapter, social contacts such as mentoring program coordinators and other mentors at the meet-ups help

mentors to support their mentees. These support groups build an exo-system that supports the micro-system *person of trust* to provide support (exo-system *mentor's ecology*) (see Figure 6.2, EXO mentor's ecology).

Another indirect support system is the *meso-system*, which is built by the exchange between the micro-systems consisting of UMY's support workers (see Figure 6.2, MESO support workers). The previous chapter showed the importance of the exchange between the micro-system *person of trust* (i.e., mentors) and the social worker at the reception facilities (micro-system *professional support workers*) to support the mental health of the mentee (cf. *Section 5.4*), which builds an important meso-system in this context.

#### The Chrono-system: Developments over Time

In this thesis, *chrono-systemic factors* (see Figure 6.2, CHRONO) are changes and experiences that UMY and their social-ecological environment (the micro-, meso-, and exo-systems) make over time, which includes past negative experiences of UMY (e.g., traumatic experiences during the flight), personal developments (e.g., learning over time), and (unforeseen) changes/events in the future (e.g., having to move out of the accommodation, which influences as well the beginning and end of professional support relationships). *Chapter 5* described how UMY gradually learn which strategies help them better cope with their situation (see *Section 5.3.2*), how building trust between mentors and mentees requires time (see *Section 5.5.4*), and how previous experiences of dropping out from school cause fear when applying for a new educational program (see *Section 5.3.1*). A chrono-systemic development faced by UMY is that they have to move out of the reception facility upon turning 18.

#### The Macro-system: Legal Policies and Political Situation

In UMY's context, the *macro-systemic* factors that predominantly interplay with UMY's resilience are legal policies and political situations (see Figure 6.2,MACRO – legal policies deciding access to education, job market, and reception facility; legal policies influencing characteristics of formal support infrastructures). Legal policies decide what UMY are allowed to do or not (e.g., having employment) depending on their asylum status and age. *Chapter 3* detailed how UMY's age and status determine where UMY live and which educational programs and jobs they are allowed to access. These factors impact UMY's daily structures, which often are unhealthy. This also hinders UMY from following their resilience strategies. *Chapter 3* also showed how political regulations lead to an insufficient care ratio, thereby hindering professional support workers in providing better care. Macro-systemic factors also include the political situation in UMY's former home countries and cultural differences between the social-ecological systems.

### 6.3.2 The Influences and Interplay

After categorizing the networks of support groups based on the definition of the social-ecological systems, this section maps how these support groups influence, interplay, and thereby influence the resilience of UMY. As part of this mapping process, I used the empirical findings regarding which factors and actors play a role in supporting UMY, how they interact and exchange information and resources, and which exchanges have been shown beneficial (presented in the previous chapter). I compared this information with the ideal interplay of social-ecological factors to promote resilience in a child/youth described by Ungar (2008, 2012a) and Ungar et al. (2013) (see *Section 6.2.2*). Table 6.2 shows my definitions of the systems in this context as well as how these systems influence, are influenced by, and interact with other systems.

| **Systems** | **Influences or interacts with** | **Influenced By** |
|---|---|---|
| Bio-system (UMY) | All micro-systems | Macro- and chrono-system |
| Micro-system *everyday living situation* | Bio-system (UMY), *professional support workers* (in particular social workers working at reception facilities) | |
| Micro-system *professional support workers* | Bio-system (UMY), micro-systems *everyday living situation* and *person of trust*, meso-system *supporter workers* | |
| Micro-system *person of trust* | Bio-system (UMY), micro-system *professional support workers*, meso-system *supporter workers*, exo-system *mentor's ecology* | |
| Micro-system *physically distant* | Bio-system (UMY) | |
| Meso-system *supporter workers* | Micro-systems *professional support workers* and *person of trust* | Macro- and chrono-system, micro-systems *professional support workers* and *person of trust* |
| Exo-system *mentor's ecology* | Micro-system *person of trust* | Macro- and chrono-system |
| Chrono-system: events pre- and during migration (e.g., negative experiences) | Bio-system's stressors, micro-systemic relationship (UMY being able to trust) | Macro-system |
| Chrono-system: stage/phase in the asylum procedure (e.g., long, uncertain waiting period) | Bio-system's stressors, micro-systems *professional support workers* and *person of trust* (e.g., need to help with navigating the paperwork and bureaucracy) | |
| Chrono-system: beginning and end of professional support relationships (e.g., because UMY having to leave reception facility or NGO-driven accommodations must cease operations) | Quality of micro-system *professional support workers* (closeness, ability to build up trust), micro-system *everyday living situation*, meso-system *supporter workers*, bio-system (UMY) | |
| Chrono-system: the process of getting to know each other | Quality of micro-system *person of trust* (e.g., level of trust, quality of support) | |
| Macro-system: legal policies deciding access to education, job market, and reception facility | Bio-system (daily structure), social and physical factors of micro-system *everyday living situation* (e.g., lack of private space), micro-system *professional support workers* | |
| Macro-system: the political situation in former home country | Bio-system's stressors and micro-system *physically distant* | |
| Macro-system: legal policies influencing characteristics of formal support infrastructure | Micro-system *everyday living situation*, *professional support workers*, and *person of trust*, meso-system *supporter workers*, exo-system *mentor's ecology* | |
| Macro-system: cultural differences | micro-system *person of trust*, *everyday living situation*,*professional support workers* | |

Table 6.2: Overview of influences and interplays between the social-ecological systems.

### Macro-system – Bio-system

The individual stressors of the bio-system are caused by macro-systemic factors, such as political regulations and the political situation in their former home country (see Figure 6.2, MACRO). Performing the different strategies that work well for the bio-system is also limited by the macro-systemic factors – namely the political regulations that set a certain daily structure and their living situation's physical and social factors. Examples of physical factors are the characteristics of the space and location (e.g., private space, closeness to a gym), while examples of social factors are the people with whom UMY share their room and/or the reception facility. These factors set by political regulations make it difficult for UMY to follow their preferred resilience strategies.

### Macro-system – Micro-systems

Macro-systemic factors (see Figure 6.2, MACRO – legal policies influencing characteristics of formal support infrastructures) impact the quality and work of the micro-system *professional support workers*. Political regulations set the available human and financial resources of professional support workers, which leads to an insufficient care ratio and a lack of time to provide sufficient support. These circumstances shape the relationship between UMY and social workers and/or teachers in the micro-system *professional support workers*.

Political regulations also set the characteristics of the micro-system *everyday living situation* (e.g., impact on how much space UMY share and the characteristics of their living environment). This impacts the relationship between UMY and peers in the micro-system *everyday living situation*.

Macro-systemic factors (i.e., cultural background) influence the relationship and exchange between UMY and their micro-systems (i.e., *everyday living situation*, *person of trust*, and *professional support workers*); for instance, the previous chapter described the issues regarding mental health stigma and ideal ways of communicating mental health. In addition, differing cultural backgrounds also cause conflicts and challenges in the micro-systems (e.g., mentor and mentee had conflicts when they were insufficiently trans-cultural).

### Macro-system – Chrono-system – Micro-systems – Meso-System

Chrono-systemic factors shape the constellation of the micro-systems. Many of these chrono-systemic factors are influenced by macro-systemic factors, such as legal policies determining how long UMY are allowed to stay in a reception facility. When turning 18 or when reception facilities must close, UMY lose access to some micro-systems due to political regulations. These chrono-systemic factors also shape the micro-systems, such as the length of the relationship between the UMY and social worker in the *professional support workers*. The lack of a long-term relationship hinders professional support workers from building a trusting relationship with UMY, which is essential for delivering mental health interventions to promote resilience.

The changes in micro-system *professional support workers* change the actors in the meso-system *supporter workers*, which might also impact the quality of the meso- and micro-systems (e.g., micro-system *person of trust*).

The lengths of the relationship also influence the quality of the micro-system *person of trust*. The level of trust in the *person of trust* increases over time and might influence UMY's ability and openness to discussing mental health problems with their *person of trust* because this conversation needs a certain level of trust. In turn, having conversations about mental health and the increased level of trust might also influence the quality of the support by the *person of trust*.

#### Chrono-system – Bio-system – Micro-systems

UMY's experiences (chrono-system), such as traumatic experiences, cause stressors (bio-system). Previous relationship experiences (chrono-system) influence how easily UMY (bio-system) can trust a new support person such as a mentor. These experiences thus shape UMY's relationship with the supporters in the micro-systems (*person of trust* and *professional support workers*).

#### Exo- and Meso-system – Micro-system

The meso-systems *support workers* and exo-system *mentor's ecology* impact the quality of the micro-system *person of trust* (e.g., the quality of mentors' support for their mentees). As described in the previous chapter, information exchange with other mentors at meet-ups or with the mentoring program coordinator aims to support mentors in addressing challenges in their mentorship (*person of trust*). I expand on this topic in *Chapter 7*, which focuses on designing support for the supporters.

## 6.4 Potential Pathways for Technology-enabled Resilience Support

As a next step, I elaborated the map of the social-ecological context by mapping the requirements and barriers to promoting resilience (see *Section 5.5* and maps in *Appendix, Section 10.3*). I thereby identified potential areas where more support is needed and thus potential pathways for integrating technology-enabled resilience support (see A, B, C, D in Figure 6.3), which I summarize in the next section.

### 6.4.1 Map of Potential Pathways for Technology-enabled Resilience Support

1. *Supporting the bio-system (A).* A criterion for promoting resilience using a social-ecological approach is that UMY can easily navigate, access, and apply appropriate and meaningful resources (Ungar, 2008, 2012a; Ungar, Ghazinour, & Richter, 2013). This potential pathway for technology-enabled resilience support focuses on providing resources supporting UMY in coping with their situation, where it is crucial to design resources that integrate into the social ecology and that do not cause additional stress and pressure on the UMY.

2. *Supporting mentors in providing support (B).* Mentors (micro-system *person of trust*) are the contacts with whom the UMY mainly discuss their problems after building trust and overcoming the barrier of mental health stigma. The relationship with mentors is characterized by long-term and regular exchanges during everyday life, which builds an excellent basis to provide regular, long-term mental health support. However, mentors need more support in providing mental health support as participating mentors indicated that they felt overwhelmed by this role. I further investigated this potential pathway for technology-enabled resilience support as part of the co-design workshops with mentors (see details in Chapter 7). As part of this more profound engagement with mentors, I identified different pathways for technology-enabled resilience support to support the mentors, which are described in the next chapter.

3. *Supporting professional support workers in providing long-term and individual support (C).* Although the social workers and teachers in micro-system *professional support workers*

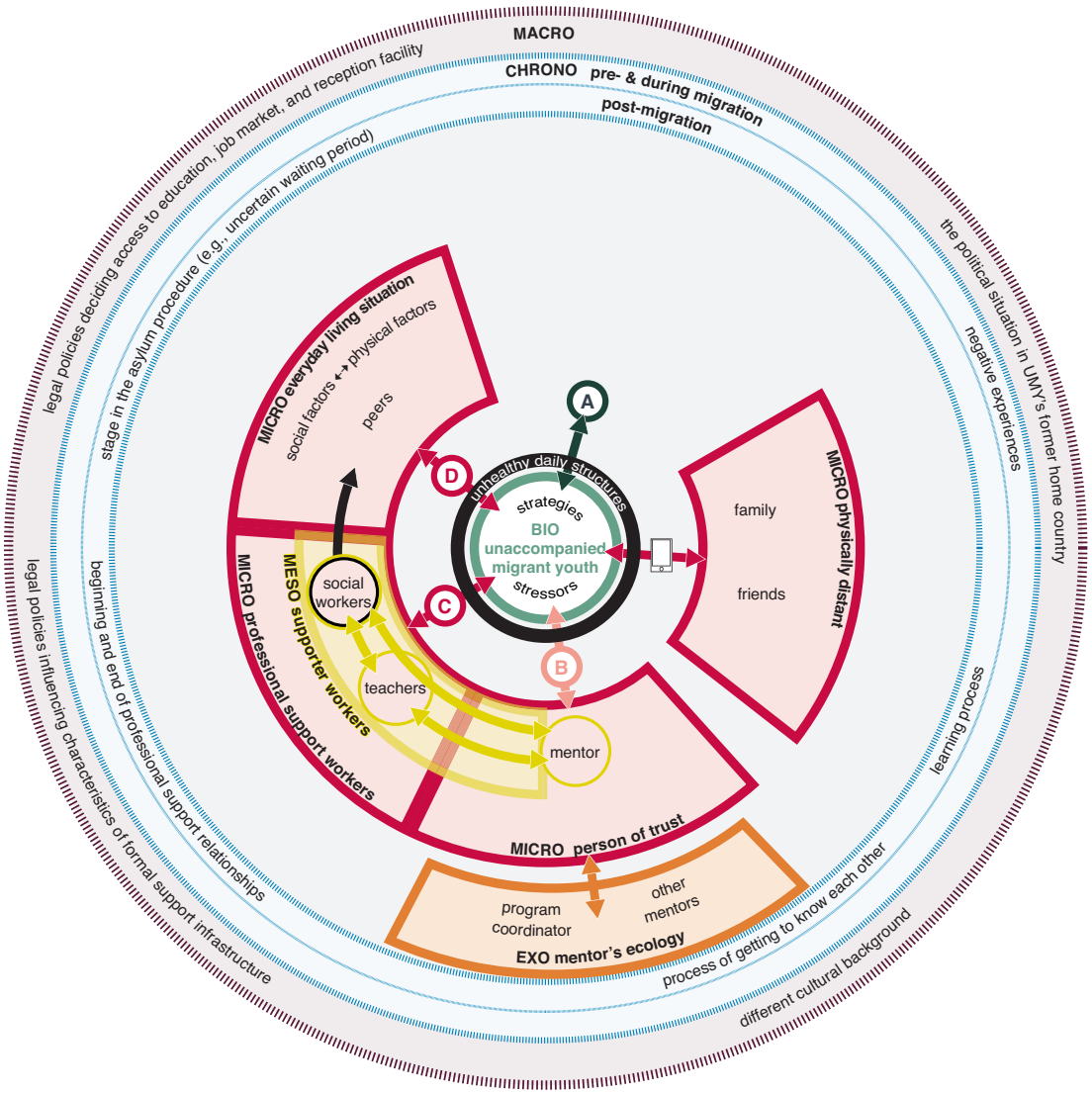



Figure 6.3: The map of the social-ecological context showing pathways A-D for technology-enabled resilience support.

have knowledge and skills to promote resilience and professionally support the UMY, they struggle to provide sufficient support due to limitations set by the macro-system. The care ratio is too low; the professional support workers lack time to meet UMY regularly; and the relationship becomes interrupted when UMY have to leave the reception facility or school. These points hinder the professional support workers from building a trusting relationship that builds the basis for discussing mental health topics and promoting change.

4. *Creating more beneficial exchanges with peers (D).* The exchange and community of peers in the micro-system *everyday living situation* positively impact UMY's mental health; however,

this influence also causes challenges by hindering applying mental health strategies due to peer pressure and lack of private spaces.

### 6.4.2 Potential for Technology-enabled Support

The following two chapters focus on two potential pathways for technology-enabled resilience support, namely *Supporting the bio-system (A)* and *Supporting mentors in providing support (B)*. Different reasons informed this decision. The previous section showed that pathways (A) and (B) are key to promoting resilience using the social-ecological approach.

The capability of support workers such as mentors to provide sufficient support is essential when promoting resilience using a social-ecological approach. The previous chapter showed that mentors are the key contact for UMY seeking mental health support. Their highly functioning and trusting relationship could form an essential basis for discussing mental health and delivering mental health interventions. Related to this, studies in psychology show that supporting mentors of youths could promote mental health in the youth; for instance, supportive environments, high quality care, social support, and the feeling of being cared for could lead to better mental health (e.g., (Eruyar et al., 2018; Hodes & Vostanis, 2019; Southwick et al., 2016)). In the context of UMY, a study identified the negative effect of the lack of social support (especially by mentors) on UMY's mental health (Sierau, Schneider, Nesterko, & Glaesmer, 2019). However, the previous chapter showed that mentors feel overwhelmed, are under-resourced, and lack most support. In HCI, there is an increasing interest in the potential role of technology in supporting informal caregivers (e.g., (Ammari & Schoenebeck, 2015; Lederman et al., 2019; Yamashita, Kuzuoka, Hirata, & Kudo, 2013; Yamashita et al., 2018)). These findings indicate potential for technology-enabled support for volunteers acting as mentors; thus, *Supporting mentors in providing support (B)* could best help UMY cope with their situation, and mentors lack most support.

The previous chapter showed that while UMY have identified strategies to cope with their situation, their situations hamper their ability to successfully enact these strategies. The findings indicate the importance of using a social-ecological approach to prevent additional pressure on UMY, but there is potential to design resources that support UMY to cope with their situation. As presented in *Section 2.4*, in the field of mental health technologies, researchers proposed different concepts for technology-enabled mental health support in other fields. In addition, a criterion of a facilitative environment is that UMY can easily navigate, access, and apply resources, which suggests that there is potential to explore how to design technological resources that function and integrate as resources in the current social-ecological environment (*Supporting the bio-system (A)*). For these reasons, this thesis focused on these two pathways for technology-enabled resilience support and explored possibilities for technology-enabled support for each pathway (see *Chapters 7* and *8*).

## 6.5 Summary

This chapter contributes to answering RQ2: *What are the possibilities for technology in this space?* by identifying potential pathways of integrating technology-enabled resilience support in this context. The chapter started by presenting that the social-ecological model of resilience by Ungar (2008, 2011, 2012a, 2012b) and Ungar et al. (2013) provides a basis for identifying potential pathways to integrating technology-enabled resilience promotion in UMY's context. This model provides a theoretical account of the empirical findings presented in the previous chapter and specifies the ideal interplay inside and across systems and social-ecological factors.

After presenting the theory behind the social-ecological model of resilience by Ungar, the chapter summarized the definitions of the different systems and their relation adapted for this context. Based on these definitions, the chapter presented the map of the social-ecological factors of this context and four potential pathways for technology-enabled resilience support and listed arguments for why the pathways *Supporting the bio-system (A)* and *Supporting mentors in providing support (B)* have the most potential for technology-enabled support. The following two chapters focus on these two potential pathways for technology-enabled interventions (*Chapter 7* on B and *Chapter 8* on A) and explore the possibilities for technology-enabled support at each of the potential pathways. *Chapter 7* and *8* thereby contribute to answering RQ2: *What are the possibilities for technology in this space?*.

CHAPTER 7

# Designing Support For the Supporters

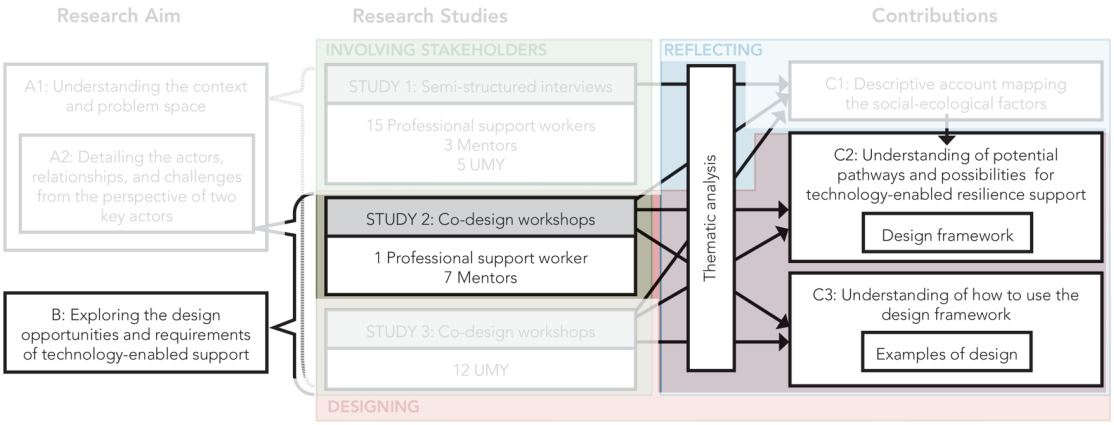



Figure 7.1: Research elements and contributions presented in this chapter.

## 7.1 Chapter Overview

In the previous chapter, I mapped potential pathways to integrating technology-enabled support in UMY's social-ecological environment and thereby took a first step towards answering RQ2: *What are the possibilities for technology in this space?*. This chapter further explores RQ2 by focusing on a specific pathway for technology-enabled support, namely *Supporting mentors in providing support (B)* (see Figure 6.3 in *Chapter 5*). This chapter details thereby the map of the social-ecological context (C1) with a focus on the mentor's social ecology and deepens the understanding of possibilities for technology to provide resilience support in this context, which

contributes to further developing the maps as a *Design Framework (C2)*. In addition, this chapter presents design examples that contribute to *an understanding of how to potentially apply the design framework (C3)* to research, design, and develop mental health technologies for this context (cf. contributions C1, C2, and C3 in Figure 7.1).

This chapter is based on STUDY 2 (co-design workshops with mentors), whose findings have been previously published in "Supporting the Supporters of Unaccompanied Migrant Youth: Designing for Social-ecological Resilience" (Tachtler, Michel, et al., 2020) and in "Designing for Technology-Enabled Social-Ecological Resilience"(Tachtler, 2020). In addition, some findings have been communicated/published in the reports of the TEAM project "D2.1 Framework and design implications for technology development" (Tachtler, Slovák, & Fitzpatrick, 2020).

## 7.2 Introduction

As discussed in the previous chapter, designing technology-enabled support for mentors is a promising approach to promoting resilience using the social-ecological approach in the context of UMY. This chapter explores how to design technology-enabled support for mentors to support promoting resilience in UMY and thereby uses the empirical insights gained through STUDY 2 (co-design workshops with mentors). The first part of this chapter presents further details concerning the co-design study with mentors before summarizing mentors' challenges, which are grouped into four areas: *"self: dealing with own expectations"*, *"the relationship between mentors and mentees"*, *"coordinating care"*, and *"exchanging and navigating expertise"*. Building on this empirical understanding, the chapter further explores what these findings mean for designing technology-enabled support for this context by focusing on two aspects:

1. identifying pathways for technology-enabled support for mentors providing support; and
2. exploring how to design for these pathways.

To explore how to design for these pathways, I use:

- the map of the social-ecological context and theory of the social-ecological model of resilience (presented in Chapter 6 and further discussed in *Section 7.5.1* and *7.5.2*);
- related work in HCI about technological solutions that support similar support approaches (see details in *Section 7.5.3*); and
- the context-specific knowledge gained through STUDY 2 (see *Section 7.4*).

This design exploration leads to design opportunities for technology-enabled support and design examples illustrating these opportunities in the form of specific design suggestions.

## 7.3 Methods: Co-Design Workshops with Mentors

*Sections 4.2.2* and *4.2.3* presented an overview of the recruitment process and methods used in the co-design workshop with mentors. In this section, I further detail of the workshop activities.

The co-design workshops with mentors were framed as being about developing a guidebook for new mentors, which provided a constructive, forward-looking way to (1) gain a deeper understanding of the common challenges faced by mentors and (2) enable them to articulate and capture support

| **Workshop Session** | **WS 1** | **WS 2** | **WS 3** |
|---|---|---|---|
| **# Timing** | September | October | January |
| **# Participants** | 5 | 2 | 5 |
| **Codes** | M1, M2, M4, M5, M6 | M7, M8 | M1, M5, M6, M7, M8 |

Table 7.1: Overview of participants per workshop session.

| # | **Activity** | **Material** | **Guidebook** |
|---|---|---|---|
| Session 1: Getting an overview | | | |
| 1.1 | Collecting advice for mentors' younger self | Post-it notes in different colors | Challenges and advice |
| 1.2 | Collecting exemplary situations when the advice is needed | Cut-outs of figures | Illustrative examples |
| 1.3 | Grouping advice into categories | Post-it notes | Chapters |
| Session 2: Deepening advice | | | |
| 2.1 | Mapping advice onto a timeline | Blueprint timelines, post-it notes | Timeline of advice |
| 2.2 | Collecting situations when advice *Setting boundaries*, *Making offers*, and *Expectations* was relevant | Cut-outs, pen, blueprint document with questions | Details for advice |
| 2.3 | Collecting advice and situations for *Talking about worries* | Cut-outs, pen, blueprint document with questions | Details for *Talking about worries* |
| 2.4 | Brainstorming six ideas per participant for technology-driven gratitude interventions | Paper, pens, post-it notes | - |
| Session 3: Finalizing guidebook | | | |
| 3.1 | Annotating, editing selections of chapters per groups | Post-it notes, pens, printed draft, map of UMY's support network | Final content and design |
| 3.2 | Annotating, editing chapters on psycho-emotional support | Post-it notes, pens, printed draft, | |
| 3.3 | Discussing suggestions and changes of improvements of each group | | |

Table 7.2: Overview of workshop activities and workshop materials.

approaches that they found to be successful. This explorative approach aimed to connect with the mentors' intrinsic "volunteer" motivation to help shift discussions from problems to potential solutions. The guidebook thus functioned as a vehicle to stimulate valuable conversations about challenges and support advice.

The co-design workshops occurred over three sessions on separate days. Each session contributed to developing the guidebook and thus a deeper understanding of mentors' challenges and support

needs. Table 7.2 gives an overview of the workshop activities per session and how the activities contributed to the design of the guidebook. Between the workshop sessions, I analyzed the data collected at each session and further developed the guidebook, which informed the upcoming workshop sessions. The *Appendix, Section 10.3* presents a detailed agenda of each workshop session (see *Section 10.3*, Figures documenting co-design workshops sessions (see Figure 16 to 18), and the guidebook (see *Section 10.3*). Table 7.1 gives an overview of mentors per workshop session.

All sessions were audio-recorded and then transcribed. I conducted a thematic analysis of the transcripts (see details in *Section 4.3*).

## 7.4 Mentors' Challenges in Providing Support

By analyzing the workshop discussion, I identified several challenges that make it difficult for mentors to provide support. I grouped these challenges into the following categories: the self, the relationship between mentors and mentees, and network-related challenges.

### 7.4.1 Self: Dealing with Their Own Expectations

As noted in *Section 5.5.4*, the mentors feel overwhelmed by their roles. One reason could be that mentors struggle to establish boundaries and accept that it is impossible to solve everything, which is especially the case if the mentees do not feel well; for instance, one mentor explained that *"Once he (my mentee) had a breakdown (...) and then you also do not know anymore how to maintain one's boundary"* (M5, STUDY 2). However, mentors need to set boundaries for their own mental health due to the close nature of the trust relationship and because mentors are exposed to empathy stress and can feel overstrained by mentees' severe situations and emotional ups and downs. In the workshops, the mentors described challenges in the mentorship as numerous ups and downs occurring in an endless loop. Being a mentor could be *"extremely exhausting"* (M2, STUDY 2), and one mentor had to frequently explain to her mentee that she did *"not have the energy to pull him out of his deep well"* (M8, STUDY 2). Mentors are confronted with mentees' uncertain situations and must manage the threat of deportation of someone they have grown to love in the instance of a negative answer during the asylum-seeking process.

### 7.4.2 Providing Direct Mental Health Support

Another challenge for mentors regards providing direct mental health support. This challenge can be grouped into three categories: reading mental health symptoms, discussing mental health, and providing support.

#### Reading Mental Health Symptoms

At the workshop, the mentors suggested that other mentors should closely observe their mentees to identify changes, signs for which could be *"uncertainties in decisions and the decision-making processes"* (SW5, STUDY 2) and *"mood swings and fluctuations in decisions"* (M8, STUDY 2). At the workshop, however, experienced mentors and the social worker emphasized that understanding their mentees' mental health represented a learning process: *"It is a learning process to try always to reflect if the UMY mention physical things, that this may be an expression of a psychological problem, as for us (adults), it is much easier to name things"* (SW5, STUDY 2). Some mentees contacted their mentors when the mentees felt unwell, such as by phoning

their mentor and indirectly speaking to them about their well-being; for example, the mentees discussed physical symptoms such as general pain, stomach pain, insomnia, or nightmares and used words such as *"my head is broken"* (M7, M8, STUDY 2) and *"losing temper"* (M7, STUDY 2) or explained that they *"sleep a lot"* (M8, STUDY 2).

### Discussing Mental Health

As presented in *Sections* 5.4 and 5.5.4, UMY talk to their mentors if they talk with someone about their mental health problems. *Chapter* 5 proposed that a reason for this might be the trusting relationship between mentor and mentee which, however, takes time to build. Even after developing a close relationship with their mentor, UMY struggle with discussing their mental health and feel ashamed, believing that they must be a strong man or role model. One mentor explained that *"it was not easy (for her mentee) not to be perfect, not to be an absolute role model, like a mannequin"* (M4, STUDY 2). Another mentor described how her *"first (mentee) partly hid, then he disappeared, and then he came back. But that was maybe a matter of shame – he always wanted to be a strong man"* (M8, STUDY 2). To overcome this taboo topic, one mentor (M4, STUDY 2) tried to create a code to discuss mental health problems, as she knew that when her mentee did not contact her, it meant that he did not feel well, and thus she asked if he would like to visit to hold her newborn. She knew that if he agreed, her suspicions would be confirmed.

### Providing Support

Mentors currently promote mentees' well-being by planning everyday activities (e.g., going for a walk together) or by ensuring that their mentees have a structured daily life and need to rise in the morning (e.g., by enrolling them in a course or planning trips during the school summer break). In addition, mentors empower their mentees to escape their role as victims and receivers of help by requesting their help with activities; however, mentors lack practical advice and resources to support their mentees' mental health that are easy to apply and useful in the long term. One mentor criticized the draft guidebook for newcomer mentors, which was developed during the first two design workshops and presented at the third, for lacking concrete advice that could help in the long term: *"Which advice do I give a depressive person? Yes, to go for a walk today, but this does not help – better would be advice about which therapy possibility he has"* (M5, STUDY 2). The advice by some mentors to know their limits and connect mentees with experts failed to succeed in practice as mentees refused to see a therapist and viewed the mentors as the person to talk to (as described in *Section* 5.4).

One mentor attempted calming exercises with her mentee, which she found online from a book for helpers to support coping with trauma, such as by drawing mandalas; however, the mentee rejected the exercises, claiming he was *"no longer a child"* (M7, STUDY 2). When the mentors brainstormed technological tools for their mentees to record positive thoughts daily, they emphasized that an activity must be simple to perform since their mentees are often tired, but it must also be connected to their interests such as games, music, or animals. One mentor argued that there also needs to be space for negative thoughts: *"It is important that they get rid of their worries, as otherwise, you (the mentors) become their trash bin"* (M8, STUDY 2). In addition, mentors felt isolated and desired the opportunity to easily contact experts, for example, to check whether they were correctly interpreting their mentees' behavior. During a workshop, one mentor suggested that an anonymous online chat to contact experts would be helpful for both mentees and mentors; however, language and slow typing skills might pose barriers to mentees in using the chat.

### 7.4.3 Coordinating Care

The findings of the co-design workshops showed that mentors face network-related challenges. One group of these challenges focuses on coordinating care.

As mentioned in *Section 5.4*, some exchange occurs between professional support workers such as social workers working at the reception facilities and mentors. For the mentors, providing help was manageable when coordination and communication worked well with the social workers and other support groups who cared for the same UMY. Otherwise, there could be conflicting methods of providing support and UMY might engage in *"caregiver shopping"* (SW5, STUDY 2), which is counterproductive to developing a trust relationship. One mentor (M6, STUDY 2), for example, described a scenario where she attempted to motivate UMY to attend school, while another unknown volunteer, with whom she lacked contact, simultaneously tried to help her mentee find a job. At the workshop, mentors stated that it was difficult to form a clear understanding of who was providing which support and how. One reason for this is that many actors from different organizations were involved in the care structure. Especially at the beginning of the mentorship, mentors struggled to find concrete offers and help with specific needs such as legal and social assistance. Different aids are offered by NGOs that only exist with sufficient funding and are only accessible to UMY who have been granted asylum. Experienced mentors suggested that the guidebook for newcomer mentors should *"give (the newcomer mentor) the idea that there is someone else"* (M7, STUDY 2) *"and maybe show a person with a question mark because often there are people whom you do not know anything about"* (M1, STUDY 2). In addition, they suggested advising newcomers to research available programs for UMY.

Effective coordination can increase the quality of care and minimize mentors' challenges in providing support in many areas of expertise; for example, one mentor stated she was glad that there was a private tutor who focused on her mentee's overall educational development and another who taught math since she would not be proficient in these areas. According to her, *"it is important that everyone works along similar lines and knows that the roles are distributed"* (M4, STUDY 2). Another mentor explained that the exchange with her mentee's social worker about how they observe certain behavior and challenges was beneficial (M8, STUDY 2); however, the mentor shared concern that they are unsure about what they are allowed to know (e.g., due to privacy issues). On occasion, social workers communicated information about UMY without their knowledge and permission – in order to support the mentor. In addition, this well-working exchange ended when her mentee had to move to a new accommodation where a new social worker was responsible for him, which made it more difficult for the mentor to provide support for her mentee, and she shared her *"wish to have more contact (with the social worker of her mentee)"* and *"be more in the loop"* (M4, STUDY 2).

### 7.4.4 Exchanging and Navigating Expertise

Another group of network-related challenges focuses on exchanging and navigating expertise. At the workshop, the mentors discussed the challenge and importance of exchanging and navigating expertise to provide better support and cope with challenges (both mental health problems and other challenges in the mentorship). This exchange of expertise could occur with other mentors and experts such as program coordinators and mental health experts.

Exchanging with other mentors brings many benefits. The mentors at the workshop emphasized the importance of exchanging with other mentors to cope with some challenges. Sharing between mentors seemed to be highly beneficial, especially between new and experienced mentors, but also for mentors who encountered similar situations. At the workshop, experienced mentors

emphasized the value of using group reflection instead of self-reflection to define their boundaries; however, as *Section 5.5.4* presented, exchanging with other mentors did not help enough. Some mentors at the workshop also explained that the exchange placed additional pressure on them since it *"triggered expectations as they created stereotypes (of the UMY)"* (M2, STUDY 2).

Besides supporting self-reflection, exchanging with others was helpful for navigating and exchanging knowledge. This study's co-design workshops also demonstrated that sharing among mentors across networks could be fruitful and positive; for example, mentors exchanged reading tips for helpers about supporting traumatized children and advice regarding relevant local organizations that prepare and assist mentees with finding a job. At the end of the workshop, the mentors were thankful for the opportunity to discuss with others the challenges and positive experiences of the mentorship.

Designing the guidebook indicated challenges in designing platforms to exchange the knowledge and advice of the experienced mentors. The context of UMY includes ongoing changes. At the workshop, the mentors discussed how to present the advice in the guidebook to prevent current information from becoming outdated. In addition, each mentorship is different, and whether advice or a local initiative fits or not depends on many factors of the mentees' background. For this reason, the mentors agreed not to include their locally specific advice in the guidebook but instead suggested to *"point out that there are different offices that are relevant"* (M7, STUDY 2) and to *"exchange with the program coordinator if there are any offers"* (M5, STUDY 2) *"in an abstract way without names and institutions"* (M1, STUDY 2).

The mentors emphasized the importance of actively seeking for support. Some mentors reported that they contacted the coordinator for supervision in some situations, such as when the *"psychological burden was too much"* (M7, STUDY 2), which helped to ensure that they did not *"misjudge the situation"*(M7, STUDY 2); however, they wished for more opportunities to exchange with experts and gain more concrete support and information. One mentor, for instance, wished to exchange with mental health experts to discuss mental health symptoms they observed to check whether they correctly interpreted the symptoms. In addition, they wished that *"there are more concrete things (such as) where do I find which information or something like a consultation hour"* (M1, STUDY 2), especially as *"all mentors more or less go through the same concerns"* (M1, STUDY 2). At the same time, the mentors criticized the timing of some current offers and said that *"it would be useful (to offer information evenings about psychological health) when you observe these things and that you then could talk with somebody about this"* (M8, STUDY 2). Even when mentors experience similar challenges, they occur at a different time depending on external circumstances (e.g., receiving a notice to appear to a hearing of the asylum-seeking process).

## 7.5 Discussion

The findings of the co-design workshops with mentors contribute to detailing the map of the social-ecological context of UMY with a focus on supporting one support group, namely volunteers acting as mentors. The findings detail how different support systems contribute to promoting resilience in UMY, namely by supporting the supporters' ability to support. In addition, the design study helps specify support needs of the mentors. Combined with the theoretical lens of the social-ecological model of resilience (Ungar, 2008, 2011, 2012a, 2012b; Ungar, Ghazinour, & Richter, 2013), these findings help identify potential pathways of technological interventions to promote resilience in UMY, which contributes to answering RQ2: *What are the possibilities for technology in this space?*.

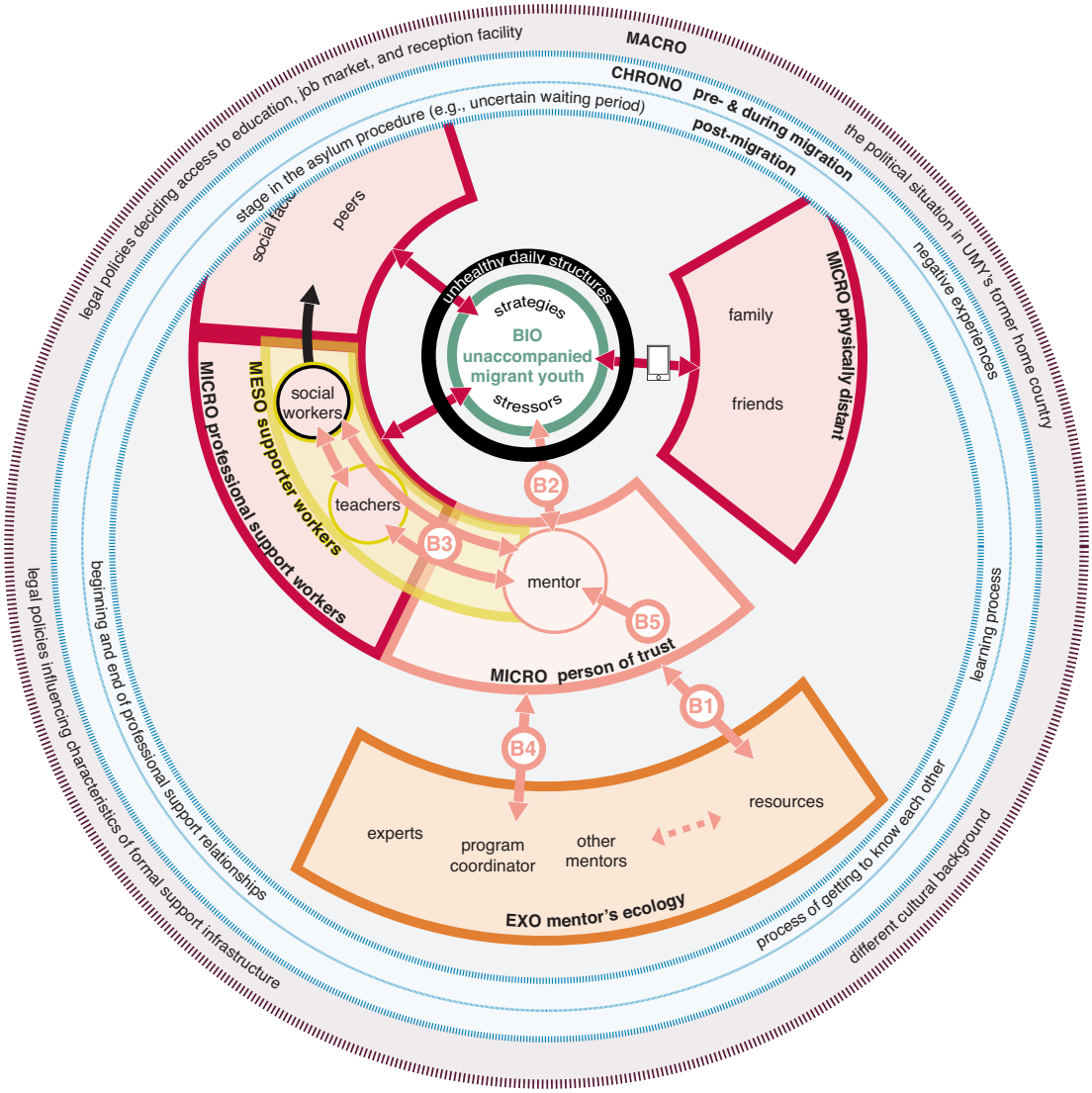



Figure 7.2: Social-ecological map of this context focusing on the mentors and their support systems. B1-5 pinpoint potential pathways for technological interventions.

As part of identifying the technological opportunities, I use examples from different HCI research fields where similar support models are needed in order to identify design mechanisms that could be translated and adapted to this context. In other areas of supporting informal and formal support workers, HCI researchers proposed opportunities for how technology could support overcoming challenges such as by supporting coordinating care and exchanging with different experts (see *Section* 7.5.3). These design mechanisms and empirical insights of this context informed design opportunities and illustrative design examples for the pathways for technology-enabled support for mentors.

### 7.5.1 The Map of the Social-ecological Context with Focus on Mentors

*Chapter 6* presents the map of UMY's social-ecological context and the definitions of social-ecological systems. The empirical data of this chapter provided a deeper understanding of how different systems of this social-ecological context influence and interplay with the mentors' ability to provide support. Figure 7.2 shows a variation of this map of the social-ecological context, focusing on the micro-system *person of trust* (mentors). Handling their own expectations (see *Section 7.4.1*) and providing mental health support (see *Section 7.4.2*) represent challenges in the micro-system *person of trust*. Challenges associated with coordinating care (see *Section 7.4.3*) cause gaps in the meso-system *support workers* (see Figure 7.2, MESO). Challenges of mentors regarding exchanging and navigating expertise (see *Section 7.4.4*) are exo-systemic challenges (see Figure 7.2, EXO) since they relate to systems that do not directly interact with UMY but impact resilience promotion by impacting their micro-systems' capacity to provide support. When further examining the support systems in which the mentors are involved, the quality of meso- and exo-systems supporting and working with the mentors gain importance. This chapter thus deepens the understanding of how meso-, exo-, macro- and chrono-systemic factors influence mentors' ability to provide support.

#### Meso-system

As described in *Chapter 6*, the meso-system of the mentors (see Figure 7.2, MESO) is the interaction between the micro-system *person of trust* (i.e., mentors) and other micro-systems of the UMY (e.g., *professional support workers*). A positive example of these interactions is the exchange between mentors, social workers, teachers, and other volunteer and professional support workers to provide the best possible support for UMY. An effective meso-systemic exchange between mentor and other support workers could thus help provide better support for the UMY by updating each other regarding the current situation of the mentee (e.g., the mentee being absent because of consuming medications for mental health issues), working together towards the same aim (e.g., finishing education) and not providing conflicting support (e.g., recommending and supporting the mentee to apply for a job vs. attending and continuing school despite challenges).

#### Exo-system

This chapter showed the importance of the exo-system *mentor's ecology* (see Figure 7.2, EXO) to the quality of the micro-interactions (i.e., mentor-mentee). As presented in *Chapter 6*, the exo-system builds the distal social interactions that promote resilience in the mentors and support the mentors in promoting resilience in UMY. The findings of the co-design workshops show that the exo-system *mentor's ecology* ideally consists of a well-working exchange of information and resources with the community of mentors, the mentor program coordinators, and experts (e.g., psychologists supporting mentors interpreting observations of mental health symptoms and discussing current challenges). The quality of the exo-system can influence the quality of the support provided by mentors. An effective exchange with other mentors (such as at the co-design workshop regarding different advice) could help mentors learn from other mentors' challenges and approaches in supporting their mentees.

### Chrono-system

As presented in *Chapter 6*, chrono-systemic factors influence the challenges of micro-systems (see Figure 7.2, CHRONO). This chapter deepens this understanding by illustrating how different chrono-systemic factors impact mentors' ability to provide support and the type of support that mentors need. The mentor-mentee relationship changes over time as the level of trust usually increases over time. In addition, the timing of the mentees' challenges and the advice for the mentors are unclear and depend on the external circumstances, such as the status and challenges of the asylum-seeking process, policies, and changes in living and educational circumstances.

Chrono-systemic changes in the meso- and exo-systems of the mentor also impact the quality of support provided by mentors; for instance, when UMY must move to new places, the social worker responsible for the mentee changes and effective exchange with mentors could be disrupted.

### Macro-system

As explained in Chapters 5 and 6, macro-systemic factors (see Figure 7.2, MACRO) such as policies influence UMY's challenges and thus their support needs. These macro-systemic factors also influence the challenges of the mentors since they are whom the mentees ask for support with these challenges (e.g., if they have to support the mentee with the asylum-seeking process or with finding a new occupation). In addition, the lack of resources in this context caused by political regulations also causes stress for the mentors, who must support the mentees with things that professional support workers would usually help with but now lack the time and resources. In addition, the macro-systemic situation causes mental stress and fear for the mentors. As they build a close, trusting relationship with the mentee, the uncertainty and threat of deportation become more stressful for mentors than for professionals who maintain professional distance.

The deepen understanding of UMY's social-ecological context (Figure 7.2) helped identify pathways for technology-enabled support for mentors to promote resilience in UMY. As a first step, the following section presents how to identify current gaps and deficiencies to locate where support is needed. The subsequent section then explains how to conceptualize solutions for these gaps by drawing a map structuring the social-ecological of UMY's mentors and work examples from other research fields.

## 7.5.2 Current Gaps

*Section 6.2.2* explained how social-ecological systems ideally interplay to promote resilience using a social-ecological approach (cf. (Ungar, 2008, 2012a; Ungar, Ghazinour, & Richter, 2013)). This theoretical understanding of the ideal interplay helps to understand gaps in UMY's and mentor's social-ecological context and where support is needed. Mentors struggle with providing mental health support as they encounter challenges across the following aspects that characterize the ideal interplay:

1. They struggle with finding and accessing resources (Figure 7.2, B1) and expertise (Figure 7.2, B4). Even when mentors manage to find resources, the resources do not fulfill the requirements and are insufficient to meet mentees' needs (e.g., being too childish), and the mentors struggle with promoting the well-being of their mentees in the long term (Figure 7.2, B2). The characteristic that the individual (i.e., the mentors and UMY) can easily navigate, access, and apply appropriate and culturally meaningful resources is thus not fulfilled in the context of UMY.

2. There is a clear gap between the coordination of care (Figure 7.2, B3) (i.e., between mentor and social worker) and the sharing between mentors caring for different UMY (Figure 7.2, B4), which decreases the quality of care. The exchange between different systems thus does not function well.
3. The mentors struggle with empathy stress, high expectations towards themselves, and feel overburdened by their role to provide mental health support. Mentors' own mental health is at risk (Figure 7.2, B5), which threatens their ability to provide stable support in the long term; thus, the supporters' well-being and capacity to support are not supported in the long term.

These points show where mentors need support in the social-ecological environment to be able to promote resilience in UMY using a social-ecological approach. Based on these gaps, I propose five pathways for technology-enabled resilience support: (B1) facilitating navigating resources; (B2) facilitating applying resources; (B3) coordinating between various support workers for the same UMY; (B4) strengthening the exchange with and within the exo-system (e.g., community of mentors and experts); and (B5) sustaining mentor's individual capacity and well-being.

### 7.5.3 Similar Support Needs in Other Informal Caregiving Contexts

Each design direction presented in the following sections draws on existing work in related areas (mainly in the informal caregiving, mental health, and NGO contexts). While mentors build a unique care relationship with their mentees, the above-described challenges show similarities to challenges of other types of caregivers, which have been the focus of previous work in HCI. Challenges of UMY's mentors in providing mental health support overlap with challenges faced by caregivers and therapists working with young people; for instance, in the context of mental health technologies for young people, researchers explored the role of technology in overcoming mental health stigma in the context of therapy (Coyle, McGlade, Doherty, & O'Reilly, 2011) or promoting autonomy in the context of supporting young people with autism (Hong, Kim, Abowd, & Arriaga, 2012).

In addition, many HCI research projects have explored the design of systems to support coordination and exchange with caregivers and resources, where examples include supporting the coordination of care (e.g., in the context of supporting young adults with autism (Hong et al., 2012) or children with complex conditions (Amir, Grosz, Gajos, Swenson, & Sanders, 2015)), easing the exchange of information and knowledge, and organizing resources (e.g., in the context of informal caregiving of elderly (Schorch, Wan, Randall, & Wulf, 2016; Tixier & Lewkowicz, 2016), children with special needs (Ammari & Schoenebeck, 2015), or voluntary work to support people with dementia (Foong, Zhao, Carlson, & Liu, 2017) and who are homeless (Le Dantec, 2012; Le Dantec & DiSalvo, 2013)).

Many HCI projects also showed that informal caregiving is emotionally demanding (e.g., caring for children with special needs (Ammari & Schoenebeck, 2015), family members, and young people with mental illness (Lederman et al., 2019; Yamashita et al., 2013, 2018), older people (Schorch et al., 2016; Tixier & Lewkowicz, 2016), and in general (Y. Chen, Ngo, & Park, 2013; Long et al., 2017)). The caregivers caring for close ones with mental illness, such as the mentors, are exposed to a higher risk of mental illness than caregivers caring for those with physical problems (Lederman et al., 2019).

Similar challenges also impact the mentors' ability to promote resilience in UMY (cf. current gaps in *Section 7.5.2*). For this reason, the following design directions draw on existing solutions

in HCI to suggest design concepts that integrate into the social-ecological environment of UMY and promote resilience by supporting the supporters.

### 7.5.4 Design Directions

In the following section, I examine how technology could help promote resilience using a social-ecological approach by examining the identified five pathways for technology-enabled resilience support (see Figure 7.2, B1-5). Each pathway focuses on supporting the mentors' ability to provide support by building on and creating new relations in their social-ecological environment.

#### Facilitate Navigating Resources (B1)

One challenge regards mentors' capacity to navigate resources that meet their mentees' needs and are accessible and culturally meaningful. Several barriers hamper mentors' ability to identify the proper resource (see Figure 7.2, B1): (1) the resources and initiatives offered are constantly changing and scattered; (2) many resources are available only for a specific problem and group; (3) and UMY require specific personalized solutions.

Technology could ease navigating resources by collecting, organizing, and guiding the search for relevant information. To support navigating resources, the systems could help identify which information is most relevant (such as in work by (Le Dantec, 2012; Le Dantec & DiSalvo, 2013) where homeless people can ideally easily identify the latest information). In the context of UMY, mentors need to know whether the resource fits the mentee's challenge and background. A technological aid could suggest relevant and accessible information based on the mentors' and mentees' background information (e.g., location, age, and the former home country as well as asylum status) and cater the results to mentors' current challenges by asking additional questions (e.g., ask the mentor to describe types of behavior that they observe from their mentees). In commercially available apps (Woebot, 2019; Wysa, 2019), for example, chatbots are designed to suggest appropriate mental health exercises based on the conversation with a person seeking mental health support.

The exo-systems consisting of mentors, mental health experts, and mentoring program coordinators could support keeping the platform updated and organized (see Figure 7.2, EXO). The workshop activity showed how mentors identified useful material and exchanged reading tips. A technological system could support a similar exchange online and, in contrast to the printed guidebook, allow sharing local and current initiatives. In addition, the system could loop in different experts such as psychologists and psychiatrists in the resource-sharing process. A tagging system could guide mentors to suggest resources, assign categories, and mark outdated resources, and the program coordinators and experts could review the mentors' input. However, to successfully design and integrate such a system in the complex ecology of local NGOs, further research is needed to identify the organizational barriers to integrating and running such system since NGOs often lack technical resources and expertise, and each NGO has different structures and practices, which leads to different design requirements (Saeed, Rohde, & Wulf, 2008). In the context of homeless people, research showed that involving and activating the community is especially important in the context of low-resource NGOs (Le Dantec, 2012; Le Dantec & DiSalvo, 2013) and that a visual language that is welcoming for non-experts could promote the sharing of content (Le Dantec, 2012). A welcoming visual language and ease of using such a technological system might also be vital to motivating mentors to use such a system.

### Facilitate Applying Resources (B2)

To design a facilitative environment, all supporters need to be able to apply and adapt resources to meet their needs and be culturally meaningful (see Figure 7.2, B2). As non-experts in mental health, the mentors desire hands-on resources that are easily applicable to their mentorship. One significant barrier to applying mental health resources is that mental health represents a taboo topic and mentees feel ashamed. In addition, the findings of the co-design workshop show that the mentee found available resources, such as the calming exercises, too childish; thus, these exercises do not fulfill this requirement, which leads to the mentees rejecting suggested solutions.

Technology could help mentors to apply relevant interventions. A game could be played by mentors and mentees that teaches the function of emotions and cultural differences in communicating about emotions. By prompting conversations about mental health, the game could make mental health less stigmatized and an integral element of daily life in the mentorship (e.g., existing activities such as studying German and discussing cultural differences, cf. *Section 5.4*). It is also feasible for technology to help people discuss and explain mental health concepts; for example, Coyle et al. (2011) designed a computer game that eased difficult conversations between a therapist and young person by reducing stigma and making mental health concepts more accessible. The mental health game would ideally allow the mentor and mentee to create their own code language, such as one of the mentor who overcomes the mental health stigma by asking her mentee if he wants to hold her newborn. In addition, as mentors are not mental health experts, they require additional guidance to facilitate such conversations (e.g., through online training modules such as in (Lederman et al., 2019)) which teach how to communicate about mental illnesses. In addition, it is crucial that the system is designed in a way that mentors can contact experts to easily discuss observed symptoms or worries, as this was one important wish of the mentors at the co-design workshops.

An additional challenge to having a conversation on mental health in this context is that the mentors and mentees have different cultural backgrounds. Even mental health experts need special training to work with clients from different cultural backgrounds (Lago, 2011). The level of privacy in the conversation between mentor and mentee differs as the level of trust changes over time and is different in every mentorship. The system thus needs to offer different activities that fit the mentees' cultural background and the level of trust in their relationship. Through the exo-system, namely the network of mentors, mentors could share their experiences regarding how they applied interventions in their mentorship.

### Coordinate Care of the Same UMY (B3)

The map of the social-ecological context shows a vast number of actors; however, the network does not function particularly well. Analyzing this challenge from a social-ecological perspective showed that the meso-system, namely the system where different micro-systems interact to provide support for UMY, does not work well (see Figure 7.2, B3). Technology that facilitates care coordination could strengthen the meso-system; for instance, a communication tool between different support workers (who are responsible for one UMY) could ease the exchange between them, make members of the care network visible, and prevent the support workers from working against each other. The system could enable creating a plan with shared care goals and ease communication between different actors (such as in (Amir et al., 2015)). Such a system could also help ease the transition phase when UMY turn 18 and usually fall out of the official care system by keeping the social worker in the technological system with a less active role. Due to the fragmented and volunteer-based network of supporters, however, ensuring that all supporters

are included in the coordination system is challenging. One approach here could be to include UMY and all known professional and volunteer support workers in the process of setting up the system. As part of this process, it is crucial that a person trusted by UMY explains them why the coordination between supporters is beneficial for them.

The system needs to be designed to support the autonomy and agency of UMY by enabling them to control their own network of supporters. Due to their flight and situation, UMY were forced to become adults and additionally lose their autonomy and agency due to political regulations; for example, UMY are not able to choose where and with whom they live (cf. *Section 3.3.1*). Increasing and supporting agency have been identified as important design requirements for other technological systems in the refugee context. An example is giving women control of dialogues with healthcare providers when designing digital health services for antenatal health (Talhouk et al., 2016). In the context of young people with autism, Hong et al. (2012) designed a system to empower young people to coordinate their caregivers and pose questions to different support groups. Caregivers invited trusted individuals to the network, and the young person choose each individual's level of access (Hong et al., 2012). A similar system could assign different levels of trust and types of expertise to the professional support workers, mentors and other support workers (e.g., private tutor teaching math), which would help UMY coordinate their network of supporters. Challenges might include potentially conflicting aims between caregivers and UMY (as discussed at the co-design workshop). The system's design thus needs to clarify the key contact person of the UMY and facilitate the process of aligning care aims. The system also needs to be designed to account for the lack of time resources of supporters. One approach might be to develop a digital platform to capture and annotate semi-structured audio conversations, such as Gabber (Rainey et al., 2019), to integrate into professional support workers' existing practices such as their quarterly meetings with UMY (cf. *Section 5.4*). An adapted platform needs to be designed so that UMY feel comfortable with capturing the audio of the conversations and so that the annotations are understandable for UMY and all types of support workers who have varying levels of expertise.

### Strengthen the Exchange with Peers and Experts (B4)

When mentors exchange insights with other mentors and experts, they can provide better support and find solutions that better fit their mentees' needs; however, the existing infrastructure for this exchange does not function well due to minimal participation, the complexity of caregiving, and lack of infrastructure for contacting experts (see Figure 7.2, B4). The exchange between mentors and experts in this context thus requires support to promote resilience from a social-ecological perspective.

Technology could help connect mentors with other mentors and experts by matching mentees' backgrounds and struggles, and facilitating online and offline exchange. The system could recognize which expert could solve a certain problem and bring them into contact to provide more individualized support. If mental health support is needed, for example, the system could establish contact between the mentor and a mental health expert. In cases of cultural or linguistic misunderstandings, the system could locate a person with a similar cultural background. In a related HCI project (D. Brown & Grinter, 2016), bringing a translator to the online communication between refugee families and volunteers helped overcome linguistic and (in some cases) cultural misunderstandings.

The system could also support the organization of local meetings based on challenges shared by many mentors; for instance, mentors who need help with the asylum-seeking process could suggest a meeting focused on this topic. Matching mentors by mentees' backgrounds and challenges

independently of the mentorship duration would help support exchanges between the newcomer and experienced mentors and could promote a long-term commitment, which is a key challenge in online health communities (Yang, Kraut, & Levine, 2017). In the context of UMY, the system has to be designed for different levels of technological experience. While caregivers of parenting age might open to use online platforms (e.g., parents of children with special needs use social media (Ammari & Schoenebeck, 2015)), older adults might have lower technology experience and could benefit from systems that bridge between online and offline social support (Tixier & Lewkowicz, 2016). Meetings could thus be offered in a hybrid format so that mentors could join offline and online. Content and discussion could be documented, shared online, and become part of the resource-sharing platform such as the platform suggested for intervention pathway B1.

### Sustain the Individual's Capacity and Well-Being (B5)

An important aspect of a resilient support network is ensuring that each individual's well-being and capacity to provide support are sustainable in the long term. As described in the findings, the mentors' role can be emotionally demanding due to empathy stress and immense responsibilities (see Figure 7.2, B5). A well-working exchange between mentors and experts may help increase the feeling of competence and consequently the individual's capacity to provide support in the social-ecological model of resilience. In addition, research has demonstrated that simply knowing that there is an option to talk with a supervisor increases the self-efficacy of supporters (Pfeiffer, 2019), which may increase the well-being of mentors and their capability of providing support over a long period.

As part of the peer support system, technological features could be added to protect the mental health of individual actors. One feature could be a request system to distribute the workload to differently experienced mentors to utilize this support structure and prevent supporters from becoming overburdened; for instance, mentors could register particular areas of expertise, such as "asylum-seeking process" and "job market for asylum-seekers". The request by a mentor seeking help in a specific area could then be sent to mentors with relevant expertise. In addition, technology could provide venting space and an option to hide negative content which might affect the mentor's mental health negatively (Lederman et al., 2019). Such technology could encourage a reflective practice through private blog posts (Y. Chen et al., 2013) and point to other mental health promotion strategies that the mentor can self-apply as well as guide mentors in handling tensions between impression management and being open about their own challenges (Newman, Lauterbach, Munson, Resnick, & Morris, 2011).

## 7.6 Reflection: Using the Map of the Social-ecological Context to Design Support

The further-developed map of the social-ecological context (Figure 7.2) helped to identify pathways for technology-enabled resilience support and to imagine potential design solutions for these pathways. By drawing on the map of UMY's social-ecological context, the theory behind the ideal interplay of the systems by Ungar (2008, 2012a) and Ungar et al. (2013), and existing work in HCI, I was able to suggest potential design directions for technology-enabled support for mentors. The map of the social-ecological context made potential pathways and support systems easily identifiable and helped to identify and imagine potential design opportunities to promote resilience in UMY by supporting their mentors. The primary approach to designing and identifying pathways for technology-enabled support with the map was building on or/and

creating new relations in mentors' social ecology. For instance, in the design direction *Facilitate Navigating Resources (B1)*, the exo-system supports the micro-system mentors in navigating and applying resources and thereby supports the connection between the micro-system mentors and resources. In addition, the map of the social-ecological context helped to map the design space of promoting resilience in UMY by providing technology-enabled support for mentors. Even if further investment is needed to understand the context-specific challenges of integrating technology-enabled support (e.g., overcoming issues in under-resourced NGOs), this chapter builds a first step towards understanding how to design and research using the social-ecological map for the context of UMY.

## 7.7 Summary

This chapter contributes to answering RQ2: *What are the possibilities for technology in this space?* by further detailing the map of the social-ecological context presented in the previous chapter and focusing on the pathway for technology-enabled support *Supporting mentors in providing support (B)*. The chapter started with presenting the deep understanding of mentors' challenges and support needs when supporting the UMY gained from STUDY 2 (co-design workshop with mentors). Using the map of the social-ecological context (Figure 7.2) and the theory of the social-ecological model of resilience by Ungar (2008, 2011, 2012a, 2012b) and Ungar et al. (2013), this chapter presented five pathways for technology-enabled resilience support for promoting mentors' ability to promote resilience in UMY (B1-5). The chapter then presented design suggestions regarding how to design technological solutions for each pathway. These design suggestions thereby draw on insights gained from other research in HCI with similar support needs and the unique characteristics of this context. The detailed map of mentors' social ecology will contribute to the final version of the *Design Framework (C2)* (see details in *Section 9.3*). In addition, the presented design examples contribute to *an understanding of how to apply the design framework (C3)* to research, design, and develop mental health technologies for this context. The next chapter uses the deepened understanding of designing with the social-ecological map of this context and focuses on another pathway for technology-enabled resilience support, namely *Supporting the bio-system (A)* (cf. Figure 6.3).

CHAPTER 8

# Designing Support with/for Unaccompanied Migrant Youth

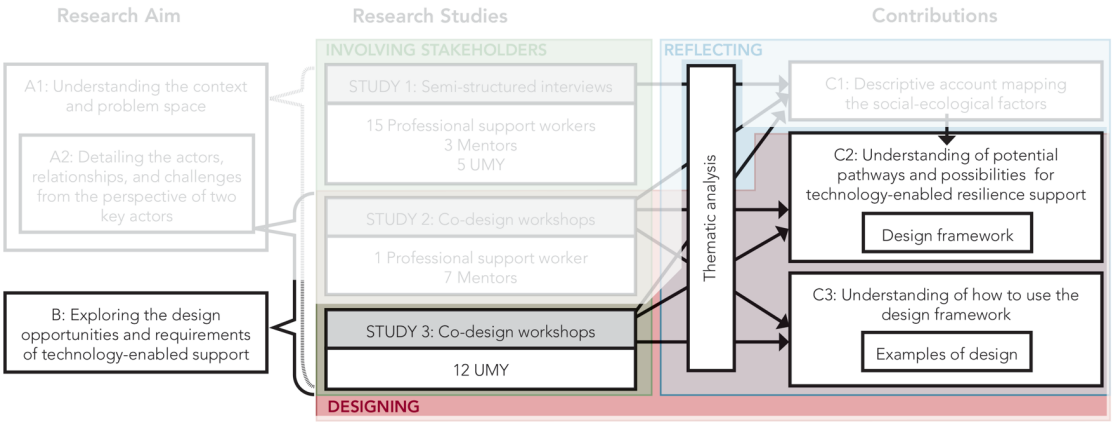



Figure 8.1: Research elements and contributions presented in this chapter.

## 8.1 Chapter Overview

The previous chapter focused on the pathway *Supporting mentors in providing support.* This chapter focuses on another pathway for technology-enabled resilience support: *Supporting the bio-system (A)* (see all main pathways in Figure 6.3). Particularly, this chapter explores how to conceptually design mental health applications to integrate into the social-ecological ecology and function as resources, which thereby contributes to answering RQ2: *What are the possibilities for technology in this space?*. Understanding possibilities to design direct technology-enabled resilience support for UMY contributes to the final version of the *Design Framework (C2)* (see

details in *Section 9.3*). In addition, the presented design examples contribute to *an understanding of how to apply the design framework (C3)*. Figure 8.1 gives an overview regarding how the research aim (B) and contributions (C2-3) presented in this chapter contribute to the research of this thesis.

This chapter draws on STUDY 3 (co-design workshops with UMY), whose findings have been published in "Unaccompanied Migrant Youth and Mental Health Technologies: A Social-Ecological Approach to Understanding and Designing" (Tachtler et al., 2021). In addition, some findings have been published in the reports of the TEAM project "D2.1 Framework and design implications for technology development" (Tachtler, Slovák, & Fitzpatrick, 2020).

## 8.2 Chapter Introduction

This chapter builds on the developed map of the social-ecological context and the understanding of how to promote resilience using a social-ecological approach. In particular, this chapter focuses on how to design technological resources that integrate into the social-ecological context and explores a particular approach for the pathway *Supporting the bio-system (A)* in the map of UMY's social-ecological context (see Figure 6.3). Even if mental health apps are an example of an individual resilience approach, the presented study focuses on mental health apps as one form of resource. Apps are one of the most accessible resources for UMY. In addition, previous HCI research demonstrated the centrality of mobile technologies in the refugee context (e.g., to support navigating their host country (Baranoff et al., 2015), establishing a new life (Coles-Kemp et al., 2018) and accessing health services (Talhouk et al., 2016)). If UMY could easily navigate and negotiate apps as a resource to help them feel better (cf. (Ungar, 2008, 2012a; Ungar, Ghazinour, & Richter, 2013)), such apps would become an important resource as part of a facilitative environment. Thus, this chapter explores how to design mental health apps to integrate into the social-ecological context of UMY.

This chapter first presents the design and content of the co-design workshop before presenting the design artifacts participants created at the workshop and how different social-ecological systems support and hinder UMY in using mental health apps. In addition, by drawing on the empirical insights of studies and work examples from HCI, the chapter suggests how mental health apps need to be designed to better account for this interplay so that they become resources to promote resilience. This chapter contributes to answering RQ2: *What are the possibilities for technology in this space?* by focusing on the pathway *Supporting the bio-system (A)*.

## 8.3 Methods: Co-Design Workshops with UMY

*Chapter 4* presented an overview of the recruitment process (see *Section 4.2.2*), details about the co-design method (see *Section 4.2.3*), and the ethical procedures (see *Section 4.4*). In this chapter, I provide more details about the content and design of the workshop series as the insights of STUDIES 1 and 2 informed the design of STUDY 3.

To explore mental health apps as resources within the social-ecological systems of UMY, I conducted two series of co-design workshops with two groups of UMY. Each of the two workshop series consisted of three workshop days, each lasting half a day (3.5 hours). The activities and methods were the same across both workshop series (see an overview of activities per workshop day in Table 8.1). During the workshops, participants were asked to work in teams. Since there were different constellations of participants every day, the setup of the teams changed accordingly

| # | Activity | Material | All/ Team/ Individually | Systems |
|---|---|---|---|---|
| ***Day 1: "Creating your own company and getting to know your competitors' products"*** | | | | |
| **1.1** | Collect activities and things that help to sleep and feel better | Mind map | A | Interplay of factors of social-ecological systems with the bio-system's mental health |
| **1.2** | Create a company name and slogan | Mind map and sketching | T | |
| **1.3** | Explore four different apps and collect negative and positive aspect | Installed apps, screenshots, post-it notes | T | Interplay of the bio-system and factors of other systems with the usage of the apps |
| **1.4** | Choose the most interesting app | | T | |
| **1.5** | Testing chosen app at home | Notebooks | I | |
| ***Day 2: "Identify the weaknesses of your competitor's product"*** | | | | |
| **2.1** | Add more positive and negative aspects of the different apps based on testing at home | Mind map with screenshots and post-it notes | A | Interplay of the bio-system, different social-ecological systems (macro- and micro-systems), and the usage of the app |
| **2.2** | Recommend a mental health app to a friend | Roleplay | T + A | Interplay of the bio-system, micro-systems (*everyday living situation*), and the features of apps |
| **2.3** | Create a persona who would benefit from using the app | Mind map | A | Interplay of social-ecological factors and the bio-system's mental health |
| **2.4** | Collect places, locations, barriers and facilitators of using the app | Mind map | A | Interplay of micro-system and the usage of the app |
| **2.5** | Create one story where the app works well and one where the app fails | Storyboard | I | Interplay of micro-systems and the usage of the app |
| **2.6** | Ideation activities to generate ideas | Mind map, paper, post-it notes | A | |
| ***Day 3: "Create your company's better concept"*** | | | | |
| **3.1** | Define the key features of the apps and the ideal way of how others find the app | Google Play Store description | T | Ideal design of apps reacting to the interplay of factors of social-ecological system with the usage of the apps |
| **3.2** | Create a prototype of your idea | Paper prototyping | T | |
| **3.3** | Pitch idea to a friend | Roleplay | T + A | |

Table 8.1: Overview of workshop activities: The table shows the activity number (#), the activity for the participants, which material the participants used, if participants did the activity altogether (A), in teams (T), or individually (I); and how the activity explored the interplay of the different social-ecological systems.

| | **First workshop series (WS1)** | | | **Second workshop series (WS2)** | | |
|---|---|---|---|---|---|---|
| **Day** | **1** | **2** | **3** | **1** | **2** | **3** |
| **Facilitators** | F1, F2, F3 | F1, F2, F3 | F1, F2, F4 | F1, F2, F5 | F1, F3 | F1, F6 |
| **#Participants** | 4 | 3 | 5 | 7+1 mentor | 4 | 1 |
| **Team 1** | Y5, Y8 | Y3, Y5, Y8 | Y3, Y5, Y8, | Y1, Y12 | Y1, Y13 | Y10 |
| **Team 2** | Y6, Y7 | | Y6, Y7 | Y11, Y9, mentor | Y10, Y14 | |
| **Team 3** | | | | Y10, Y13, Y14 | | |

Table 8.2: Overview of participants and facilitators per workshop series and day.

(see the constellation of teams in Table 8.2). There was always one facilitator responsible for one team to moderate the activities and clarify questions. Knowing that some participants might not attend each workshop day, each day started with a recap activity where attendees of the workshop on the previous day presented the previous work to new attendees. The third workshop of the second workshop series did not occur because only one participant was able to attend. Another participant (Y11) did not feel comfortable attending the workshop alone and instead preferred to attend the workshop together with his mentor. In total, 12 male[1] UMY participated in this study. The facilitators identified themselves as female, male or non-binary.

### 8.3.1 Selection of Workshop Apps

To evaluate existing mental health apps, the participants worked with commercially available mental health apps. Being well versed in the mental health interventions recommended for UMY, I selected the apps by:

1. gaining an overview of available mental health apps and the list of apps recommended by a recent review on the fit of commercially available mental health apps to youth's media preferences (Michel, Tachtler, Slovák, & Fitzpatrick, 2019);
2. generating a list of potential apps that focus on sleeping problems and stress (Fazel & Betancourt, 2018; King & Said, 2019) and promoting techniques that are recommended for UMY (e.g., managing worries and sleep hygiene techniques) (King & Said, 2019);
3. screening the apps according to interaction criteria recommended for maintaining youth engagement (primarily offering multi-modal input and output (Michel et al., 2019)) and their Google Play Store/Apple App Store rating.

The workshop focused on sleeping problems and stress because some interventions recommended for UMY focus on these issues (see also *Section 2.3*), and interviewed professional support workers recommended that less stigmatized terms such as stress help bypass the mental health stigma (see *Section 5.5.2*). The selection process resulted in selecting four apps to use in the workshop: Fabulous, Mind Max, Pin It and Bin It, and Shleep (see description in Table 8.3).

At the beginning of the first workshop, the participants engaged with four apps selected by the authors. Each participant then chose one app, which they used throughout the rest of the workshop series and at home between the workshop days.

### 8.3.2 Workshop Activities and Data Collection

Each workshop activity was designed to explore the interplay of different factors of the social-ecological systems with the usage of the mental health apps. Due to the abstract nature of the social-ecological model of resilience, the facilitators discussed the systems by asking about the factors within the systems that participants interact with and/or are familiar with; for instance, the activities and conversations focused on themselves and other UMY peers to investigate factors of the bio-system. Table 8.1 gives an overview of these workshop activities.

The beginning of the first day of the workshop focused on participants' current mental health activities, where the facilitators asked participants to reflect on activities that they engage with

[1] As pointed out in *Section 4.2.2*, all participants were male even if I aimed for gender balance. The majority of UMY are male. During the recruitment process, NGOs also reported that female UMY are difficult to reach and rarely participate in public life.

| App | Mental health activities |
|---|---|
| Fabulous | Help to plan positive activities every morning, afternoon, and evening to build healthy habits and sleep better, e.g., progressive muscle relaxation, gratitude exercise, darken/cool down the room in the evening |
| Mind Max | Activities to learn to identify and name emotions, identify values and personal strengths, teach mindfulness |
| Pin It and Bin It | Activity to remember positive and forget negative things (e.g., worries), namely by first writing down positive activities or negative thoughts and then either pinning the positive or deleting the negative thoughts |
| Shleep | Short videos explain which habits help and do not help sleeping better; Selection of tasks to support applying the advice in their life. E.g., reduce digital caffeine before going to bed, setting up the sleep environment |

Table 8.3: Overview of existing 'competitor' mental health apps evaluated by the participants.

to improve their mental health as well as strategies that may involve the use of technology (see Table 8.1, activities 1.1 and 1.2). These activities aimed to gain an initial understanding of the bio-system and factors of other social-ecological systems (e.g., the micro- and chrono-system), which influence participants' mental health. Participants then started to work in their teams to create a name and slogan of the company, which helped steer the discussion towards mental health apps as a resource for better sleep and handling stress and to formulate forms of support that they found helpful. The facilitators then introduced the mental health apps as a resource to promote resilience. As part of activity 1.3 (see Table 8.1), participants explored the four mental health apps and annotated screenshots of the apps with their evaluations. This activity enabled exploring the interplay of the bio-systems with different types of apps and collecting immediate factors regarding their social ecology that might interplay with using the mental health apps.

At the end of the day, each participant was asked to choose their favorite app to explore throughout the rest of the workshops and at home, which guaranteed that the participants engaged with the app that they considered to be the most appropriate for themselves (i.e., the bio-system). In addition, the participants received notebooks to collect feedback about their use of the app in between the workshop days. The participants could choose which language to use, thereby giving the option to express themselves in any language and at their own pace (A. Brown & Choi, 2018; Talhouk et al., 2019).

The second day focused on deepening the understanding of the interplay of social-ecological systems and the usage of the mental health apps by eliciting participants' new insights from using the app at their accommodation. This was done through several activities that promoted reflection by participants on their and their UMY peers' ability to apply the mental health apps when accounting for factors within the bio-, micro-, and chrono-systems. The roleplay activity (activity 2.2 in Table 8.1) and storyboard activity (activities 2.4 and 2.5 in Table 8.1) helped gain insights into factors of the micro-system. Activity 2.3, in which participants were asked to identify a persona who would benefit from using the app, provided more insights into the bio-systems.

On the third day, participants created their own concept for a mental health app and presented their final concepts by pitching them to a friend as part of a role-playing activity, which helped understand participants' vision of how the technological designs can be motivated by factors of the social-ecological systems, which they identified as a factor influencing the usage of the app on

previous workshop days.

All activities were audio-recorded and then transcribed. Artifacts made by participants during workshop activities (i.e., mind maps, storyboards, paper prototypes) and notebooks were also collected for analysis. Before and between team activities, the teams presented and discussed their work. The audio recordings were transcribed in German or English.

I conducted thematic analysis on the transcripts, the design artifacts (e.g., storyboards), and the participants' notebooks and followed the six phases of thematic analysis by Braun and Clarke (2012) (see details in *Section 4.3*).

## 8.4 Findings

The findings show the ways, in which the interplay between the *bio-system* (UMY's individual factors), *micro-systems* (direct social support systems), *chrono-system* (temporal dimension), and *macro-system* (political regulations and culture) play a central role in influencing the UMY's ability to apply the activities suggested by the mental health apps. The findings also highlight the lack of a facilitative environment for being able to use mental health apps within UMY's social-ecological environment. This chapter first gives an overview of the design artifacts that participants produced during the workshops in Section 8.4.1, which highlights how the findings were drawn from both the design artifacts produced by the participants and the discussions surrounding the creation process. The chapter then presents how the macro-systemic factors constrain the ability of the UMY to create healthy daily structures in which they can successfully apply the mental health apps. In addition, the findings indicate that these macro-systemic factors influence their micro-systems, namely factors of the *everyday living situation* (i.e., the living environment, social factors, and technological infrastructure, see *Section 8.4.3*) and the exchange and contact with micro-systems (i.e., with the micro-system *physically distant* such as family and friends living in the former home country, see *Section 8.4.4*). Participants also reflected on the potential role of mobile apps in relation to building a micro-system *person of trust* (see *Section 8.4.5*). Lastly, the findings highlight the chrono-systematic factors (i.e., mental health learning over time) to be an essential consideration for the usefulness of the mental health app within UMY's social-ecological environment (see *Section 8.4.6*).

### 8.4.1 Design Artifacts Produced at the Workshops

#### Insights from Mind Maps

The mind map activities helped guide the discussion and thinking process as well as informed the following design activities, such as creating storyboards and paper prototypes. The mind maps in Figure 8.2, for instance, emerged from the brainstorming activity wherein participants collected points in time, places, barriers, and facilitators of using the apps, as well as characteristics of a person who would benefit from using the apps for better sleep and reduced stress. Examples of potential points in time were: *"5 am morning"*, *"on the way"*, *"in breaks"* and *"having time"*, while example places include: *"underground"*, *"bed"*, *"park"* and *"library"*. The variety of locations underlines the mobility aspect. In addition, the points in time highlight the adapting the use of apps to tight schedules. As barriers, participants listed *"flatmates being awake until midnight"*, *"not possible to go to a different room"*, *"dictating tasks"*, *"timing"* and *"amount of advice"* and while facilitators of using the app were: *"needing to want help"* and *"having a job with routine"*, *"giving you a task"*. Examples of characteristics of the persona were *"working during the night"* and




Figure 8.2: Mind maps of potential personas, places, times, barriers, and facilitators of using the app. #1: STUDY 3-WS1. #2: STUDY3-WS2. See larger version of Figures in *Appendix, Section 10.3*. See description in Table 8.4.

*"not sleeping during the night but then sleeping in the morning until evening"*. While these mind maps give an overview of the relevant aspects across all participants, the subsequent storyboard activity was performed individually or in teams of two.

### Insights from the Storyboards

The storyboards show how the bio-system, micro-systems, and macro-system occur in UMY's everyday lives and how these systems hinder the successful usage of the apps (see list of storyboards in Table 8.5). Each participant created at least one storyboard showing how the app does not work well before creating a successive storyboard showing how the app would work well. Through the storyboards, participants highlighted micro-systems that interplay with the usage and user experience of the mental health apps, which included the micro-systems *everyday living situation*

| WS | Short Description | Figure |
|---|---|---|
| WS1 | Examples for barriers: flatmates awake until midnight; cannot go into another room; Examples for facilitators: have a fixed time to go to sleep; Places: park, in the accommodation, in bed, library; Times: break at work, after sleeping, when you have time | Figure 8.2 larger version: Figure 27 |
| WS2 | Examples for barriers: no time, the app should not dictate tasks; Examples for facilitators: depends on what they like; Places: gym; Times: in the morning, at 5 am after getting up, when you cannot sleep, not during lunchtime | Figure 8.2 larger version: Figure 28 |

Table 8.4: Overview of mind maps.

| Short Description | Figure |
|---|---|
| **Workshop 1: Storyboards where the app fails** | |
| Persona is stressed due to work, fights with their female friend/partner, school, and exams, and that all happens simultaneously. For these reasons, the persona should terminate their job because the job does not have regular working times. | Figure 8.3, #1; larger version: Figure 30 |
| Persona receives many notifications by the social media apps and the mental health app, persona deletes all notifications, persona has an angry and sad face. | Figure 8.3, #2; larger version: Figure 32 |
| Persona has a lot to do, e.g., with their family and work, and does not have time to use the app. | Figure 8.3, #3; larger version: Figure 34 |
| Persona is very stressed, has no time to eat and for the app, and sleeps really badly. | Figure 8.3, #4; larger version: Figure 35 |
| **Workshop 1: Storyboards where the app works well** | |
| Persona leaves their job to have time for the mental health app and positive activities. | Figure 8.3, #5; larger version: Figure 31 |
| Two persons are lying in a bunk bed. One gets up. The other one still wants to sleep because he did not sleep well. The application reminds him to get up. It is midday 12pm. The person is still sleeping but the app says the persona needs fresh air. The person goes for a run. | Figure 8.3, #6; larger version: Figure 33 |
| The person works. He makes a time schedule with the app. He goes for a walk. He is at work. The app reminds him. | Figure 8.3, #7; larger version: Figure 36 |
| **Workshop 2: Storyboards where the app fails** | |
| The persona works, the persona receives a message, the persona is lying in bed and cannot sleep, he looks at the phone, the phone gives the advice not to use technical devices. He is stressed and cannot sleep. | Figure 8.4, #1; larger version: Figure 37 |
| He has an app, goes to the gym, and sets the time to go to the training. At the training, the timer is running up. He is annoyed as there is no time left. | Figure 8.4, #2; larger version: Figure 39 |
| Storyboard shows a schedule of activities; the persona does not know with which activity to start. At home, the persona is not allowed to use the phone. During the night, the persona cannot use his phone and sleeps badly. | Figure 8.4, #3; larger version: Figure 41 |
| **Workshop 2: Storyboards where the app works well** | |
| The persona is at school. In the afternoon, he is at home and very tired. To prevent going to sleep, the persona uses the app. The app gives the advice to go for a walk. He goes for a walk. | Figure 8.4, #4; larger version: Figure 38 |
| The persona cannot sleep. The app suggests activities to the persona, which makes the persona tired. The app reminds him. | Figure 8.4, #5; larger version: Figure 40 |
| On Sunday, the persona makes a schedule for the whole week and marks if they did the activities. At the end of the week, the persona receives a summary of the week. | Figure 8.4, # 6; larger version: Figure 42 |

Table 8.5: Overview of storyboards created by UMY.

| WS/ team | Short Description | Figure |
|---|---|---|
| WS1/ team 1 | Paper prototype of a smartwatch: One screen shows a book with the title *"Good night stories"*. One screen shows symbols for music and videos, one screen shows different diagrams and says daily diagram; Filled out Google Play Store description saying: *"We give you the advice you have never heard of, we protect you, we remind you, what you should do; Our app offers different languages; We give you different advice, and we calm you down."* | Figure 8.5; larger version: Figure 43 and 44 |
| WS1/ team 2 | Paper prototype of mobile phone app: Mind map of post-it notes saying, e.g., pin code, plan, reminder, sport; Google Play Store description saying: planning of activities and reminders, diary with photos, music that helps fall asleep, advice, no advertisement, easy to use; Different paper screens: one screen for the passcode; one screen showing a calendar of a month, one showing a calendar of a week and activities; one screen showing photos; one screen showing a list of activities. | Figure 8.6; larger version: Figure 45 and 46 |

Table 8.6: Overview of paper prototypes created by UMY.




Figure 8.3: Storyboards of STUDY 3-WS1. Top #1-4: storyboards where app fails, bottom #5-7: storyboard where app works well. See larger version of Figures in *Appendix, Section 10.3*. See description in Table 8.5.

(namely peers such as roommates); and micro-system *physically distant* (namely family and friends whom they message via social media) (see the overview of these micro-systems in *Section 6.3.1*).

The macro-system becomes visible when comparing the storyboards where the apps are successfully used with storyboards where the persona is unable to use the app effectively; for example, Y8's first storyboard (see Figure 8.3, #1) shows how the persona is stressed as conflicts with a friend, work, and exams at school occur simultaneously, and thus the persona cannot use the app. In Y8's second storyboard, which includes the changes to be able to use the app, the persona leaves

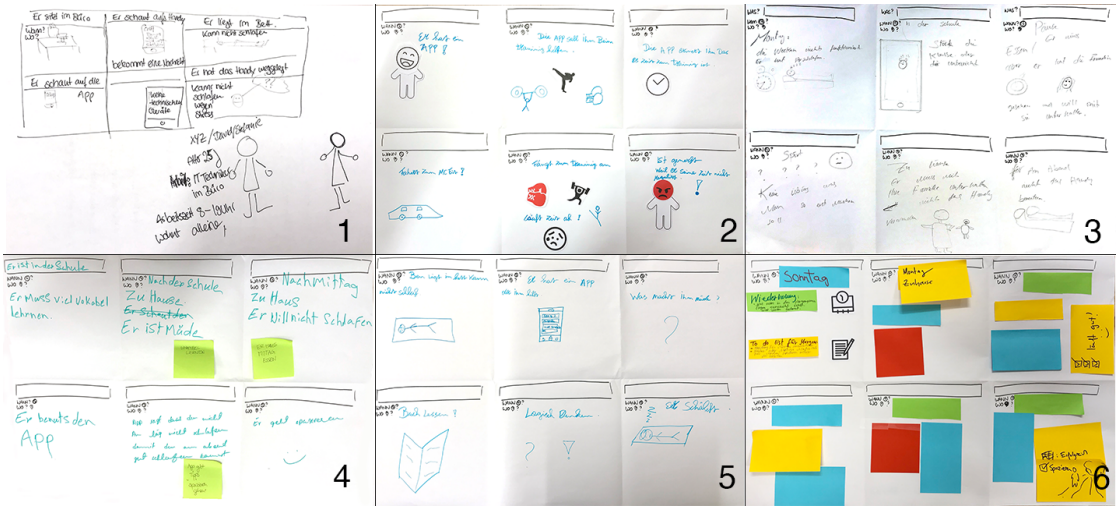



Figure 8.4: Storyboards of STUDY 3-WS2. Top #1-3: storyboards where app fails, bottom #4-6: storyboard where app works well. See larger version of Figures in *Appendix, Section 10.3*. See description in Table 8.5.

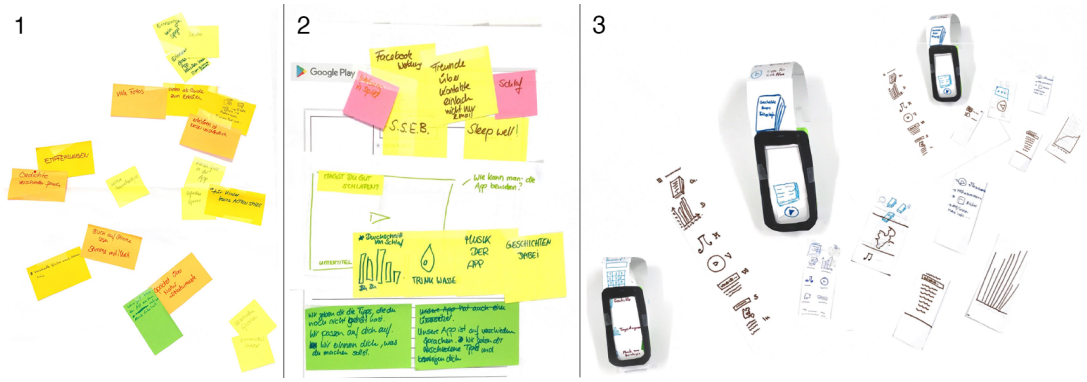



Figure 8.5: Final prototype of STUDY 3-WS1 by team 1. Mental health app delivering stories and music helping to sleep better. #1: Mind Map. #2: Play Store description. #3: Paper prototype. See larger version of Figures in *Appendix, Section 10.3*. See description in Table 8.6.

his job and has time to use the app and time for positive activities (see Figure 8.3, #5). Other participants depicted various means to overcome macro-systemic problems, such as managing time constraints by creating a detailed plan of how to organize a week (Y13, Figure 8.4, #6) and reacting to the most challenging moments, such as when coming home after school where many tend to take a nap instead of staying awake (Y14 and Y10, Figure 8.4, #4). Besides the time issue, the storyboards communicated stress caused by the technology due to the macro-systemic situation, namely the distance from many close contacts and how this conflicts with using the mental health app. An example is Y3's storyboard (Figure 8.3, #2), in which the persona becomes




Figure 8.6: Final prototype of STUDY 3-WS1 by team 2. Calendar to plan activities and collect pictures of positive activities. #1: Mind Map. #2: Play Store description, #3: Paper prototype. See larger version of Figures in *Appendix, Section 10.3*. See description in Table 8.6.

frustrated by all the messages and notifications when turning on the internet to use the apps, deletes all notifications, including the ones by the mental health app Shleep, and instead plays with his phone.

### Insights from the Final Concepts

The paper prototypes and how the participants communicated these concepts through the Play Store descriptions suggest how they imagine the ideal app and which features seem to be especially important for them (see Figures 8.5 and 8.6, and the description in Table 8.6). One feature which caused detailed discussion during the workshops was the password protection of the app as participants feared that other people, including those with whom they are forced to share accommodations, and technology companies could access their data. In addition, the concepts are characterized by multi-modal content and adaptability. Figure 8.5 shows a smartwatch that offers *"good night stories"* of varying lengths that are adaptable to the amount of time available to the user. The other mobile phone-based prototype (see Figure 8.6) contains different screens showing features that support planning activities and setting reminders. Another key feature is that the app stores the users' positive memories, such as with friends represented by photos. These features of the final prototype indicate how the participants imagined their ideal app contrasted with existing mental health apps that they used; for example, some participants added password protections, others pitched apps that could be personalized to their routines.

Throughout the workshop, participants expressed their hopes and interest in an app that helps engage in mental health strategies to address stress and sleep problems: *"I want to do all this (coping strategies), but I cannot. I would be able to do it if there is an app that helps me. This would be very nice"* (Y6, STUDY 3-WS1). This finding underlines the participants' positive attitude towards mobile apps as a resource to promote mental health in contrast to the stigmatized mental health topic and services (cf. *Section 5.5.2*).

### 8.4.2 Occupation and Daily Structure (Macro-system)

The findings can be interpreted through the lens of the different system levels. The macro-system, namely the political regulations dictating the living situation, occupation, and daily structure of participants (see *Chapter 3*), predominantly influences the integration of the mental health app in UMY's everyday life. As presented in *Chapter 5*, UMY struggle to pursue their key mental health strategies since their asylum status and connected macro-systemic regulations dictate their daily structure. This lack of control over their daily structure also posed a challenge for the workshop participants when exploring their ability to apply the mental health apps as a mental health resource. The app Fabulous, for instance, suggests performing certain morning, afternoon, and evening activities, but the participants deemed the timing, lengths, and the delivered prompts and activities as not appropriate to their daily structures. Participants stated that a key barrier to practicing the activities recommended by the app Fabulous is that *"(UMY) always have something to do. Therefore they cannot (use this app)"* (Y8, STUDY 3-WS1). Participants reiterated the difficulty of fitting the apps and suggested activities into their daily structures through the storyboards that they created. In one storyboard (see Figure 8.3, #4), the persona has to achieve things during the day, and when he comes home, the persona is too tired to perform an activity suggested by the app and thus sleeps poorly.

The participants further highlighted that the inability to tailor the timing and lengths of suggested activities based on their schedules triggered stress and frustration, which thus resulted in them abandoning the mental health apps: *"You get stress with this app, sometimes it does not fit well (with your daily schedule)"* (Y1, STUDY 3-WS2, tested Fabulous). When providing feedback on the Fabulous app, Y1 stated that *"I (cannot use the app in short breaks) during the working time"* (Y1, STUDY 3-WS2, tested Fabulous app), and in his notebook, he shared his frustration with not being able to regulate the lengths of the gym activity suggested by the apps. Participants also suggested that for the persona to be able to apply the suggested activities, the persona *"should leave his job, so then he has more time to use this app"* (Y8, STUDY 3-WS1, see Figure 8.3, #5), or change to a better occupation (compare Y5's storyboard, see Figure 8.3, #7).

In response, participants suggested solutions to help manage the limitations set by the macro-system on their daily structures. One participant developed a concept where the app helps the persona to plan both mandatory and positive activities throughout the coming week (see Figure 8.4, #6). In addition and as described in *Section 8.4.1*, when pitching their final concept for an app (see the prototype, Figure 8.6), one team advertised the feature that the user can adapt the length of the activity to their available time: *"This app (...) takes little time (just so) that it helps. For instance, before going to sleep, (depending on if) you have 10 minutes or (...) up to half an hour time, it reads a short story"* (Y6, STUDY 3-WS1).

### 8.4.3 Everyday Living Situation (Micro-system)

Throughout the workshops, participants indicated how the micro-systems that they and other UMY interact with at their home influence their experience in applying the mental health apps, especially since interactions with the mental health apps occur within this micro-system. Participants identified the relevant physical and social factors within the micro-system that hindered their ability to engage with the mental health apps. Similar to the daily structures, the physical and social factors within their everyday lives are also dictated by the macro-system, namely the (local) regulations which dictate their living accommodation, including the location and flatmates, and the political situation which influences their interactions with their mobile phones (cf. *Chapter 3*). *Chapter 5* highlighted how social and physical factors determined by

political situations hinder UMY from following their preferred mental health strategies. The findings presented in this chapter show that this hindrance also causes challenges in using mental health apps as a resource.

### Physical Factors: Living Environment

The physical qualities of the UMY's living environment were found to hinder the performance of the strategies recommended by the mental health apps. Participants discussed how some activities suggested by the apps were not feasible due to the constraints in their accommodation. As highlighted in *Section 5.3.3*, UMY's peers (e.g., roommates) significantly influence the habits of UMY and can make it difficult to maintain healthy habits (e.g., healthy sleeping routines). The apps tested the workshop added to this mismatch between constraints set by the living situation and recommendations as well as behavior by the app (e.g., assigning different roles to the rooms and reminders to maintain healthy daily routines). Participants discussed, for instance, how they found it difficult to maintain the routine suggested by the app since sounds from the apps and the participant undertaking the routines disturbed their roommates. One of Y3's storyboards (Figure 8.3, #6) visualizes the physical setup of the living environment, namely showing the bunk bed and how he spends his day next to it while his other roommate sleeps. Y3 decided to focus on improving the sleep patterns of his roommate since they negatively impact his own living environment. During the creation process, Y3, who rises early every morning to pray, explained: *"(My roommate) is sleeping when my alarm goes off, (so) he kicks against the (bunk) bed with his foot (as) he doesn't want to wake up."* (Y3, STUDY 3-WS1). Y1, who tested the Fabulous app, similarly described the conflict between the behavior of the mental health app and his roommates' physical proximity: *"I did not want to hear the music (of the app) because it was still dark in the morning and my two roommates were still sleeping. I clicked on it (the app), and then it made (imitates sounds)"* (Y1, STUDY 3-WS2). As shown in both quotes, the physical factors of the living environment available to UMY hindered their ability to apply the recommendations provided by the mental health apps within their micro-system.

### Social Factors

In addition to the physical factors of the micro-system *everyday living situation*, social factors such as the social pressure described in *Section 5.3.3* hinder the UMY from following mental health strategies. The social perception and pressure additionally tie into their living environment, which is decided by the macro-system. This challenge does not change if recommendations and activities are delivered by the mental health apps. The lack of private spaces and different unhealthy daily structures made it difficult for participants to engage with the app and activities suggested by the app without disturbing their roommates and without fear of ridicule or critique. The social factors of the *everyday living situation* thus interfered with participants' usage of mental health apps beyond the issues of shared physical space.

According to participants, the lack of privacy from roommates and the perceived sensitivity of the topic of mental health caused the need for the mental health app to be password protected. They expressed concerns that their everyday social contacts (e.g., friends) might gain access to their mobile phones and view what was in the mental health apps; thus, depending on the content of the app, such as if the app functions *"like a diary"* (Y6, STUDY 3-WS1) or *"there is a lot of personal things inside"* (Y10, STUDY 3-WS2), then having a *"password is important"* (Y6, STUDY 3-WS1). While explaining the need for a password, one participant pointed at his friend and explained: *"I do not want that he (my friend) can see it (the diary entries)"* (Y6, STUDY

3-WS1). It is not surprising then that all prototypes developed by the participants contained a security pin that further reflected their need to maintain their privacy within their micro-system.

Despite the challenges caused by the social factors, participants also highlighted the importance of reaching out to their peers if the participants had problems to discuss: *"if nobody is at home, I call my friend (...)(and) at school, we talk at our breaks and take a walk"* (Y14, STUDY3-WS2). However, as described in *Section* 5.5.2, discussing mental health demands high sensitivity and the openness to discussing such problems varied amongst the participants. In one instance, one participant (Y6, STUDY 3-WS1) was discussing how he used one of the apps with his flatmates, which surprised another participant (Y3,STUDY 3-WS1), who said that it is only appropriate to discuss mental health issues with close friends.

#### Physical Factors: Technological Infrastructure

The technological infrastructure available to participants was another factor of micro-system *everyday living situation* that influenced their ability to apply the mental health apps as a resource. Participants highlighted that the apps required more modern smartphones than what some of the participants had; up-to-date operating systems on their phones; and access to WI-FI and/or mobile phone data. The lack of availability of the aforementioned infrastructures hindered some participants' ability to use the mental health apps outside the workshops. Participants explained that they and their peers often lacked money to purchase mobile phone data; that their home WI-FI network did not work and/or their assigned accommodation had a strict schedule for when the WI-FI was available for their use. In addition, participants had other apps that they deemed to be more important than the mental health apps, and their mostly old phones had limited storage space; therefore, they could not install the app because the *"phone has no storage, unfortunately"* (Y8, STUDY 3-WS1). Lastly, when one participant attempted to install one of the mental health apps on his phone, he was unable to because he only had access to the Google Play Store of another country where the app was unavailable (STUDY 3-WS1).

### 8.4.4 Physically Distant Social Contacts (Micro-system)

As presented in *Section* 5.4, the micro-system *physically distant* influences UMY's mental health positively and negatively. While social media, messaging, and phone apps were essential to stay in touch with these contacts but introduced stress through negative news, the inability to contact their social contacts caused worries and thus added stress. This need to maintain and stay updated intervenes with their experience of the mental health apps. Discussions regarding the use of the mental health apps led to discussions regarding stressors introduced into participants' lives through other apps on their mobile phones through which they interacted with their *physically distant* social contacts. Y3's storyboard (Figure 8.3, #2) visualizes this conflicting influence, where the persona becomes annoyed by the amount of notifications, deletes all notifications (including the notification of the mental health app) without reading them and thus does not use the mental health app.

### 8.4.5 Person of Trust (Micro-system)

At the workshops, participants highlighted that mental health apps could create or extend existing social factors within micro-systems. New connections to persons of trust could be created in the online space and could lead to micro-systems which exist both online or offline or micro-systems which stay in the online space and are (potentially) anonymous. When presenting their design

ideas, participants suggested that mental health apps could help reach others *"whom you could ask questions about what you should do in your situation"* (Y5, STUDY 3-WS1) or *"who can help you to forget your stress (by) driving with you somewhere or playing football"* (Y1, STUDY 3-WS2).

Participants emphasized that although talking to an app about their problems was different from talking to a person of trust, technology could provide a different form of a micro-system *person of trust*, namely by connecting them to a person whom they can entrust with their worries while allowing them to stay anonymous:

"*(The other participant) said an app cannot be like a person of trust. I think he is right, but through using the app, you can find someone you can trust. E.g., there has to be an app to talk about your emotions with someone. This has to be anonymous, e.g., the person with whom I talk doesn't know me. I do not know that person, so it is easier to tell your emotions. That could also be helpful"* (Y10, STUDY 3-WS2).

These findings highlight the complexity of identifying a person of trust online, indicating that online interactions can not substitute offline engagements with a person of trust. The findings also show participants' interest in creating online interactions that complement existing offline social contacts by facilitating anonymous conversations or positive activities.

### 8.4.6 Development over Time (Chrono-system)

Lastly, participants discussed how their personal development and experiences over time (chrono-system) shape their evaluations of the mental health apps as mental health resources. The chrono-system development contributes to developing of the mental health knowledge of UMY, which influences whether the content of the mental health app is perceived to be appropriate.

Not feeling a change over time or that the activity helps stopped participants' from using the mental health app. Participant, Y14, for example, explained in his notebook that he tested the app for three days and performed the activities; he stated in his notebook: *"Nothing happened. Then I stopped. I did not get much energy"*.

In addition, the findings indicated that if the app does not consider participants' pre-existing knowledge and experience, they evaluated the app as not useful. When evaluating Shleep, one participant highlighted that he does not view a need to continue using an app as he *"watched two, three videos and know(s) everything"* (Y10, STUDY 3-WS2, tested Shleep). One team questioned the Mind Max app, as the suggested activity was integrated into a game, and based on their knowledge, they perceived that a game *"distracts from sleeping"* (STUDY 3-WS2, team 1).

Based on these reflections, participants highlighted that they viewed one role of the apps as facilitating their learning process by enabling them to *"read through and simply try which (activity) is helpful for (them)"* (Y14, STUDY 3-WS2) since this helps identify what a person (i.e., the bio-system) needs and that what is helpful to them is *"different for everyone"* (Y10, STUDY 3-WS2; Y14, STUDY 3-WS2). To support this learning, participants suggested integrating learning development in their designs of mental health apps by creating functions such as calendars that document their learning progress. Documenting their activities and how this affects their mental state would help them identify the long-term effects of certain activities (e.g., by identifying whether they feel energized or fit):

"*You should learn from your mistakes (so) that you do not repeat them. – What are the things I should stop? What needs more energy?"* (Y13, STUDY 3-WS2, presenting storyboard 6, Figure 8.4).

*"The most important thing (of our App) is the calendar (...) when the time passed, (the app) shows I used this, and now I feel really fit, and I continue using this"* (Y6, STUDY 3-WS1, prototype, Figure 8.6).

The chrono-systemic development of the UMY contributed to certain mental health knowledge and personal preferences for mental health activities, which impacted the participants' evaluation of the usefulness of the mental health apps as a mental health resource. In addition, participants highlighted that mental health apps needed to support this continuous learning process to function as a mental health resource.

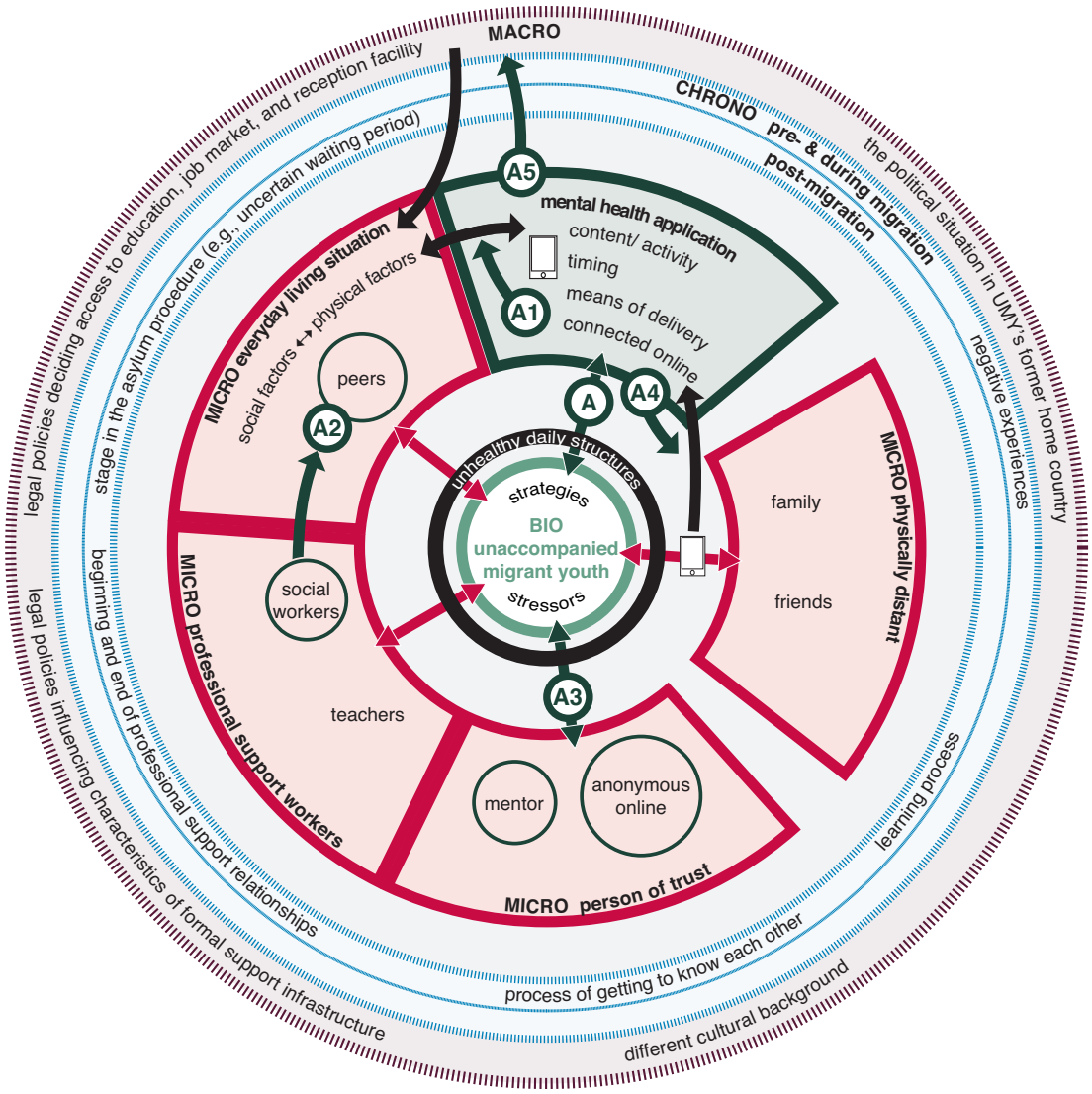



Figure 8.7: Interplay between bio-system, micro-systems, chrono-, and macro-system, and the mental health app.

## 8.5 Design Requirements for Technology-enabled Support

The findings presented in this chapter provide a better understanding of how mental health resources would integrate into the map of the social-ecological context and how different factors influence UMY's ability to use technological resources such as mental health apps. The findings show that macro-, micro-, chrono-, and micro-systems influence the usage of these mental health apps and indicate that technological resources need to account for these influences to function as a resource. The following section discusses design solutions for how technology could account for the macro-, micro-, chrono-, and micro-systemic influences.

### 8.5.1 Accounting for Macro-system's Influences

The findings showed how the macro-system shapes the UMY's daily structure and the micro-systems in which the interaction with the resource mainly occurs. Macro-systemic factors such as policies and legal structures shape the social and physical factors of the micro-systems, resulting in the lack of infrastructure and space in micro-system *everyday living situation*, Figure 8.7. This influence contributes to micro-systems that are non-facilitative environments for applying the mental health apps as resources. For purposefully designing mental health technologies, mental health apps must be designed to account for the social and ecological factors within UMY's lived experiences. The following sections present the factors identified in the findings section as design considerations and implications for mental health apps that are appropriate within UMY's existing social ecology.

### 8.5.2 Designing for the Micro-systems

The findings show that the constraints set by the macro-system hinder UMY's ability to access and apply mental health apps as a resource. The macro-system regarding political regulations connected to the asylum status dictates UMY's occupations, daily structure, and the physical and social factors of the micro-systems, namely their *everyday living situation* (see Figure 8.7, MICRO *everyday living situation*). Mitigating and managing these constraints could improve the fit of mental health apps within their existing social-ecology to thereby become resources that UMY *"can easily navigate, access and apply"* (Ungar, 2012b).

Mental health apps have to be designed to tailor the timing, content, and means of delivery to the social and physical factors of the current micro-system (see Figure 8.7, A1). This should include design for trade-offs. Due to the constraining situation, UMY need to be able to use the mental health app even if the social and physical factors of the micro-system are restrictive; for instance, participants highlighted that the lack of technological infrastructures, resources, and control over the availability of Wi-Fi in some accommodations influenced the modality through which they could access and use mental health apps. In addition, participants' lack of private space within their shared accommodation limited their ability to engage with the mental health apps. In other work in HCI, college students suggested discreet text-based resources to overcome the barrier to engaging with mental health resources due to the lack of privacy and time alone (Lattie et al., 2020); however, research has also shown the benefits of multi-modal content besides text in promoting youth engagement in mental health interventions (Michel et al., 2019). A hybrid model that detects the technological infrastructure accessible at a point in time and responds accordingly with the appropriate medium of intervention delivery could thus enhance UMY's ability to apply mental health apps as a resource.

Machine learning (ML) and data-tracking solutions could support this tailoring of mental health apps; for instance, technological solutions delivering interventions for behavior change can identify the best timing to deliver support to the individual when they are most vulnerable and minimize disruptions (Carpenter, Menictas, Nahum-Shani, Wetter, & Murphy, 2020; Liao et al., 2018). Passively sensed data could provide insights into the physical and social factors of the micro-system (e.g., ML using Bluetooth data helps to understand the location-based social networks in dynamic group situations such as meeting others in the hall (Z. Chen et al., 2014)). The passively sensed data could be complemented and improved using actively collected data via self-reporting solutions such as ecological momentary assessments (K. Doherty, Balaskas, & Doherty, 2020). Thieme et al. (2020) have indicated in their review of ML in mental health, however, that much work is needed in understanding what data individuals are willing to share passively and actively in order to design appropriately responsive ML-driven mental health technologies. The findings show that UMY have high privacy concerns. Other studies in the context of refugees and asylum seekers have also shown that this population has increased privacy and security concerns related to their data (Coles-Kemp et al., 2018) but have low agency in detailing the data that they are willing to share and how that data is used by service providers (Coles-Kemp & Jensen, 2019; E. Shoemaker et al., 2019). These privacy concerns require consideration when designing future ML-driven mental health apps.

The findings also highlighted the importance of factors within micro-systems when interacting with mental health apps, primarily regarding the social factors within their micro-systems *everyday living situation*, *physically distant*, and *persons of trust*.

### Designing for the Social in the Everyday Living Situation

Similar to Burgess et al.'s (2019) and Lattie et al.'s work (2020), the findings show that the design of mental health resources must consider the different social contacts and their role within UMY's social-ecological environment. To integrate into this environment, mental health apps need to support the UMY in managing the influences and roles of the different micro-systems. The findings indicate that the social factors of the (predominantly male) micro-system *everyday living situation* impact not only the engagement with mental health resources but also the ability to apply the advice and activities (i.e., yoga) due to peer pressure and mental health stigma. While mobile phone apps may facilitate private engagement with a mental health intervention, further research is needed regarding how such individual interventions may interact with and connect to wider interventions within their everyday micro-systems.

Pendse et al. (2019) suggest designing mental health technologies for families by providing two apps: one for the cared-for person and one for the family. In the context of behavioral change, technologies such as Fitbit provide the option to create challenges among friends (Klasnja & Pratt, 2014). Similar mobile phone-based interventions could leverage existing supportive relationships, such as the two UMY discussing their problems at school breaks; for example, building on the prototype suggested by participants (Figure 8.6), which stored positive memories, individuals may be able to select positive memories collaboratively with close friends.

Creating shared activities or including most residents at the accommodation could help overcome mental health stigma, the risk of being negatively perceived by their peers, and could counter the pressure to adapt to the mainstream daily rhythm at the accommodation. Participatory design research targeting men's mental health, for instance, suggested applying a more self-improvement approach and masculine tone through a football-themed app (Cheng et al., 2018, 2020); however, it is essential to take into account whether participants experienced games as negatively impacting their sleep qualities (as this hindered participants of this study using the football-themed Mind

Max app) and that the level of openness towards mental health topics differs among individuals, accommodations, and peer groups. Such an approach would require social workers working at the reception facilities (micro-system *professional support workers*) to introduce and moderate mental health activities within the accommodation (see Figure 8.7, A2).

### Designing for the Person of Trust

Participants wished to be able to talk to others anonymously despite having access to the micro-system *person of trust* (mentor), and they shared concerns regarding sharing mental health information among their different social micro-systems (e.g., peers). The findings thus highlight the need to consider different levels of trust within online and offline social micro-systems (see Figure 8.7, A3) and their relation to privacy and social identity. These findings align with the previous findings of this thesis, namely that mentors are an essential social factor within the micro-system for UMY. Several participants trusted their mentors to support them in engaging with research workshops, and some emphasized that a mental health app can not substitute for a person of trust. Participants also highlighted the challenge of expressing emotions due to the untranslatability of the terms, however, and expressed hesitance in sharing mental health problems due to distrust and stigma. The mobile apps can build on experienced mentors' practices to create a code language with their mentees to overcome challenges of untranslatability and distrust (see the previous chapter); for instance, the apps could support sharing current mental health statuses by offering features such as data-sharing tools (Yamashita et al., 2017) and creative means of expressing emotions (Thieme, Balaam, Wallace, Coyle, & Lindley, 2012). In addition, previous research in HCI proposed concepts for how technology could support connecting refugees to other micro-systems and extend their social capital (D. Brown & Grinter, 2016; Neuenhaus & Aly, 2017). Such solutions could be adapted to support connecting newcomers to a local person of trust.

### Designing for Physically Distant Social Contacts

The findings show that the micro-system *physically distant* (see Figure 8.7, MICRO physically distant) and their stressors associated influenced engagement with mental health apps. Participants identified that while social media and news from home caused stress (e.g., showing re-traumatizing news about refugees), the apps are also needed to minimize other stressors (e.g., not knowing the well-being of their social contacts back home). Participants presented scenarios in which social media notifications dissuaded engaging with their mobile phones and, consequently, the mental health apps. This finding highlights that mental health apps are part of the technological ecology of the phone and do not function in isolation. Researchers (B. Brown, Bødker, & Höök, 2017) have noted a lack of understanding of the interplay between different mobile apps, as research in HCI mainly focuses on the people's interactions with one app and ignores the fact that people engage with multiple installed apps. Mental health apps therefore need to be designed to support UMY in managing these competing tensions (see Figure 8.7, A4). These apps could be used to identify other mobile apps that introduce stressors and accordingly provide the option to mute those apps. In addition, they could help counter the stressors introduced by identifying when the UMY are using social media apps and then prompting them to engage in a mental health activity afterward to help cope with the triggered worries.

### 8.5.3 Designing for the Chrono-system

The chrono-system (see Figure 8.7, CHRONO) influences the situation and constellation of all social-ecological systems and their relationship to the UMY (Ungar, 2011; Ungar, Ghazinour, & Richter, 2013). Due to macro-systemic regulations, UMY must often change accommodations (e.g., having to leave their accommodation when turning 18 (Bassermann & Spiegelfeld, 2018)) and thereby lose contact with the care infrastructure. This development is especially traumatic for UMY since building trust requires time due to previous traumatic experiences where their trust was abused (Majumder et al., 2015). Besides social-ecological factors, bio-systemic factors such as mental health knowledge change over time; thus, technological interventions need to adapt to ongoing changes and be able to move with the UMY. Mobile apps facilitating engagements between mentors and UMY, for instance, need to account for the changes in levels of trust as their relationship develops.

In the workshops, participants also identified the need for mental health apps to consider chrono-systematic development to create mental health resources that engage with their learning process over time. Participants' ideations of mental health apps suggested the need for the apps to document the strategies and multi-model content (e.g., recorded goodnight stories and meditation music) that they applied and experienced as beneficial. In addition, they suggested integrating the learning process into the design of mental health apps by creating functions such as calendars that document their learning progress. Such functionalities of planning, documenting, and reflecting on activities have been previously explored within HCI, such as for behavioral activation (Rohani et al., 2019, 2020) and improving well-being (Isaacs et al., 2013). In some instances, participants based their evaluations of the apps on their knowledge regarding which mental health activities work for them.

The mental health app consequently needs to initially identify the pre-existing knowledge and preferred strategies before the user engages with the content of the app. Literature on mental health and UMY emphasizes the importance of care and support for UMY by primarily helping them further develop their strengths, patterns of agency, and resilience (Derluyn & Vervliet, 2012). Mental health apps could be used to learn about existing strengths and strategies, increase UMY's awareness of them, and strengthen them.

### 8.5.4 Designing for Long-term Change of the Macro-system

The findings highlight that due to the influence of the macro-system, UMY have limited control over factors within their social-ecological environment that hinder their ability to use mental health technologies as resources. The findings highlight how the political and thus legal policies that constitute the macro-system of UMY need to be transformed; therefore, we cannot design technologies for the mental health of UMY without supporting ways of acknowledging and countering unjust macro-system factors. Just as the bio-system and micro-systems do not function in isolation from the macro-system, neither should design efforts; therefore, a two-pronged approach to designing for the mental health of this population is needed. Besides purposefully designing mental health technologies that account for factors within their social-ecology, we also need to design towards a societal transformation that would enable a more socially just macro-system that, in turn, contributes to a facilitative environment in which UMY can apply mental health apps as a resource.

Work such as (Michie, Balaam, McCarthy, Osadchiy, & Morrissey, 2018; Strohmayer, Meissner, Wilson, Charlton, & McIntyre, 2020) highlight how technologies may be used to share experiences lay foundations for activism and political debates and catalyze activist initiatives. In the context

of UMY, technological solutions could build on participants' wishes to anonymously discuss their experiences and mental health stressors with others. We may consider how these technological solutions could make activist groups more proximal within UMY's micro-systems; indeed, no participants indicated activists or advocacy groups as part of their micro-systems. Activist networks connected through social networking sites (SNS) have been found to be a successful modality in building solidarity (Irannejad Bisafar, Foucault Welles, & Parker, 2020); however, participants identified the negative impact of social media on their mental health and therefore further exploration is needed into how UMY would want to safely connect to such networks to contribute their mental health experiences and advocate for change. As part of the intervention PhotoVoice, for example, participants become heard through sharing pictures (Bashore, Alexander, Jackson, & Mauch, 2017; Girang, Chu, Endrinal, & Canoy, 2020). This intervention may be integrated into mobile apps such as the diary app suggested and prototyped by participants (see Figure 8.6). The mental health state and environment of UMY, which are influenced by the macro-system, can thereby be collated in the mental health app and shared through the app to SNS networks without the need for the UMY to actively engage with social media apps.

Zegura et al. (2018) demonstrated how communities can use data to advocate for better living conditions. In this context, data contributing to personalizing mental health apps can similarly be used to identify and quantify factors attributed to the macro-systems that negatively impact the mental health of UMY and pose a barrier to mental health interventions; for example, UMY can opt to share and annotate data reflecting the lack of usage of an app in the morning due to the cramped living situation or instances where they feel stressed about not hearing about their asylum application. With their consent, such data can be pooled anonymously by advocacy groups and organizations to generate evidence calling for changes in policies; thus contributing to shifting care infrastructures from a legal perspective to one based on promoting health and well-being (see Figure 8.7, A5).

## 8.6 Reflection: Using the Map of the Social-ecological Context to Design Resources

This chapter showed how the map of the social-ecological context of UMY (see Figure 8.7) helped identify social-ecological relations and influences that hinder UMY from using mental health apps as resources. Understanding how social-ecological factors interplay with the mental health app helped identify possible solutions that support, manage, and mitigate these influences and thereby identify ways to better integrate mental health apps into the UMY's social-ecological environment. These mental health apps could thus become resources for UMY which they can easily apply and thus promote resilience from a social-ecological lens. Without adopting a social-ecological lens, the complex interplay impacting UMY's ability to use the mental health apps would have remained undetected; thus, the map functioned as a framework to research and design potential design solutions accounting for the broader social-ecological context, interplay, and factors. In addition, the framework helped conceptualize potential solutions presented as design examples in this chapter.

While this chapter focused on mental health apps as one form of mental health resource, I argue that the gained insights help design mental health technologies to become accessible resources for other (non-mobile-phone-based) technology-driven resources. Even if mental health apps currently do not integrate well into existing physical factors of the micro-systems, the findings underline that mobile technologies are technological tools best suited for UMY's everyday life (e.g., adapting to the forced mobility and the need of privacy). This chapter highlights opportunities to extend the

ecosystem of mental health resources and learn from these findings to better design technological solutions for other pathways for technology-enabled support in UMY's social-ecological context; for instance, when designing resources for *Facilitate applying resources (B2)*, the design of the technology needs to account for the limited agency of UMY in shaping the structure of their everyday and physical environment.

## 8.7 Summary

This chapter contributes to answering RQ2: *What are the possibilities for technology in this space?* by focusing on the pathway *Supporting the bio-system (A)* and drawing on the empirical findings of STUDY 3 (Co-Design Workshops with UMY), where I explored how mental health apps need to be designed to integrate into the social-ecological context of UMY. This chapter first presented a descriptive summary of the design artifacts that participants produced at the workshops and how the artifacts show the interplay of the social-ecological systems with the mental health apps. The chapter then summarized how each social-ecological system interplays with the usage of the mental health app. Based on these empirical insights, I discussed how technological solutions need to be designed to account for this interplay to function as a resource in the social-ecological context of UMY. The map of the social-ecological context (see Figure 8.7) also helped suggest potential design solutions by making social-ecological influences and interplays more easily identifiable, which contributed to suggesting solutions that help manage and mitigate social-ecological influences that hinder using mental health apps as resources. The suggested solutions thus illustrate *how to (potentially) apply the design framework (C3)* to research, design, and develop mental health technologies for this context. Understanding possibilities to design direct technology-enabled resilience support for UMY contributes to the final version of the *Design Framework (C2)* presented in the following chapter.

CHAPTER 9

# Discussion

## 9.1 Chapter Overview

This thesis explores how we could potentially support resilience development for UMY with the help of technology. This builds an essential step towards designing and developing mental health technologies for refugee communities and makes a novel contribution at the intersection of the research fields of mental health technology and HCI and refugees. To answer the overall research question, this thesis investigated the following two subsequent research questions:

- RQ1: How does resilience promotion currently occur in the everyday context of UMY?
- RQ2: What are the possibilities for technology in this space?

This chapter discusses these research questions in light of the research findings and presents the updated version of the social-ecological design framework for resilience promotion for UMY, which synthesizes insights gained throughout this thesis. Then the chapter reflects on the applicability of the findings and the framework beyond the focus of this thesis, namely supporting UMY in a high-income country. Last and not least, this chapter presents reflections on the challenges and limitations of this work.

Elements of the discussions have been published in "Unaccompanied Migrant Youth and Mental Health Technologies: A Social-Ecological Approach to Understanding and Designing" (Tachtler et al., 2021), "Supporting the Supporters of Unaccompanied Migrant Youth: Designing for Social-ecological Resilience" (Tachtler, Michel, et al., 2020), and "Designing for Technology-Enabled Social-Ecological Resilience"(Tachtler, 2020).

## 9.2 Need to Adopt a Social-ecological Approach

This research started with an individual view on resilience promotion. For this approach, a range of interventions is recommended for UMY that are also evaluated in practice, and evidence shows that these interventions are possible to translate into the digital space (cf. *Chapter 2*). Based

on the deep understanding of the everyday context of UMY (RQ1) and exploring the design opportunities for this space (RQ2), however, I argue for the need to look beyond the individual when designing technology to promote resilience in this context.

First, the empirical findings of this thesis highlight the influence of social-ecological factors that cannot be ignored when designing resilience support for UMY. Macro-systemic factors (i.e., political regulations) impact factors of all other social-ecological systems. Political regulations cause stress for UMY and place them in unhealthy living circumstances that entail barriers for UMY to following their own mental health strategies (cf. *Chapter 5*). In addition, these political regulations inhibit the quality of support by direct and indirect support systems; for example, mentors in the micro-system *person of trust* struggle to provide sufficient support due to network-related challenges (gaps in the meso- and exo-exchange, cf. *Chapter 7*). Macro-systemic factors (e.g., causing constraining living situations or political conflicts in their former home country, cf. *Chapter 5*) cause mental stress when managing relationships with peers in the micro-system *everyday living situation* and social contacts in the micro-system *physically distant*. In addition, the whole social ecology often undergoes ongoing changes (chrono-system) due to macro-systemic factors (e.g., new policies, changes of asylum status, or age), which also impact macro-system factors and the situation of all other social-ecological systems and in turn the resilience promotion (e.g., the beginning and end of the relationships in the micro-system *professional support workers* change the actors and characteristics of the meso-system *support workers* and could impact the quality of the micro-system *person of trust*, cf. *Chapter 7*). When designing resilience support for this context, these different social-ecological factors cannot be ignored. Thus, the findings of this thesis support the request by some researchers in the field of mental health promotion that in the context of migrant youth (including UMY), mental health support needs to occur in a multidimensional and social-ecological manner (Eruyar et al., 2018; Fazel & Betancourt, 2018; Hodes & Vostanis, 2019).

Second, the findings of this thesis highlight that technology cannot replace the essential social ecology of support groups but could help strengthen and support them; for instance, *Chapter 7* maps pathways for technology-enabled support for UMY's mentors that build on and support new social-ecological relations such as a digital sharing platform between mentors (exo-system, cf. *Chapter 7*). These new technology-enabled relations could, in turn, support knowledge exchange and help overcome barriers to provide support that otherwise would have been difficult to overcome (e.g., mentors navigating and applying resources to support their mentees, cf. *Chapter 7*).

Related to this, research in the context of HCI and refugees also highlighted the importance of the social ecology for the mental health of refugees (A. Brown, Choi, & Shakespeare-Finch, 2019; Ertl et al., 2019), and the capability of refugees to manage the resettlement process (D. Brown & Grinter, 2016; A. Almohamed, Vyas, & Zhang, 2017, 2018; Weibert & Wulf, 2010) and situations in the refugee camps (Talhouk et al., 2020; Talhouk, 2020; Yerousis et al., 2015). In addition, evidence shows that technology could increase the capacity of the network by promoting peer support in the contexts of informal caregiving (Ammari & Schoenebeck, 2015; Tixier & Lewkowicz, 2015, 2016; Yang et al., 2017) and mental health support (O'Leary, Bhattacharya, Munson, Wobbrock, & Pratt, 2017; O'Leary, Schueller, Wobbrock, & Pratt, 2018). Researchers have proposed concepts for how technology could promote the quality of direct support by providing technology-mediated psycho-education and therapy for relatives of people with depression (Lederman et al., 2019) or by including a person of trust in mobile-based interventions by providing options to share experiences (Shala et al., 2020). Thus, promoting the network's capacity and including social contacts with the help of technology becomes increasingly essential when researching and designing mental health technologies. In the case of UMY, this is even more essential and complex since UMY have to flee and manage their situation unaccompanied by adult relatives. In addition, in their host

country, they must navigate a scattered network of supporters and cope with complex challenges, which complicates it for their supporters such as mentors to provide support.

Third, the empirical findings showed that ignoring social-ecological factors when designing mental health technologies could impose barriers and hinder UMY and their social ecology from using and benefiting from technological solutions. As discussed in *Chapter 8*, UMY would lack the capability to fully use these technological interventions and follow their mental health recommendations if technological solutions are not well integrated into the social-ecological environment. Despite the argument that technology can be a useful tool for refugees to deliver time- and place-independent mental health interventions (Rubeis, 2021), the research of this thesis showed that the capability to use these interventions is complexly dependent on time, place, and the social and physical ecology of UMY.

Recent studies on mental health technologies in the refugee and migration context support this finding as they identified technological (Burchert et al., 2019; Disney et al., 2021; Ertl et al., 2019) and content barriers (Burchert et al., 2019; Disney et al., 2021; Ertl et al., 2019; Shala et al., 2020; Spanhel et al., 2019) that impact the ability of refugees and migrants to use mental health technologies. That these technological solutions are not designed to account for social-ecological influences might also be a reason for the low uptake of mental health apps in a recent randomized controlled trial (Röhr et al., 2021) and high dropout rates of refugees using digital mental health support (Wirz, Boettcher, Knaevelsrud, & Heeke, 2021). These are common signs of non-adoption or abandonment of technological solutions in the context of health and care technologies (cf. (Greenhalgh et al., 2017)). Thus, in the context of UMY, besides translating existing interventions into the digital space (such as by Schroeder et al. (2018) and Rohani et al. (2019, 2020) in the context of mental health technologies for the general population), we must design technological solutions that take into account the complex interrelations and interdependencies of the social-ecological environment.

Overall, this research showed that in the context of UMY, it is essential to adopt a social-ecological approach to designing technology-enabled resilience support. Otherwise, the technological solutions could not be as supportive as possible and could even fail to provide any support.

## 9.3 The Social-ecological Design Framework

As described in *Chapter 6*, I populated the social-ecological model of resilience by Ungar (2008, 2011, 2012a, 2012b) and Ungar et al. (2013) for the specific context of UMY to explore how to design technology-enabled resilience support for UMY using a social-ecological approach. In the subsequent chapters, I then further developed parts of this map and used it as a design framework to (1) gain an overview of the complex social-ecological context for UMY, (2) identify pathways to integrating technological support in this complex social-ecological context, and (3) design for these pathways. Figure 9.1 shows how the theoretical elements of the social-ecological model and the empirical findings of each study contributed to developing the social-ecological design framework for context of UMY. Figure 9.2 gives an overview of the main elements of the social-ecological design framework as it currently stands at the end of the studies of this thesis. Figure 7.2 shows a detailed view on intervention pathway B. Figure 8.7 shows a detailed view on intervention pathway A. In the next section, I review this framework before discussing ways to design with this social-ecological design framework for resilience promotion for UMY.

<table>
<tr><th colspan="2">Theory: Social-Ecological Resilience<br>(Ungar, 2008, 2011, 2012a 2012b;<br>Ungar et al., 2013;)</th><th>Empirical Data</th><th>Design Framework</th><th>Chapter</th></tr>
<tr><td colspan="2">Structure of different systems based on Bronfenbrenner's ecological theory of development (Bronfenbrenner, 1979)</td><td>All studies</td><td>Map of current social-ecological context and new systems that could result through the integration of technology in this context</td><td>6</td></tr>
<tr><td rowspan="3">The ideal interplay of these systems needs to create a facilitative environment that promotes resilience:</td><td rowspan="2">(1) Interplay between support systems</td><td>All studies</td><td>Mapped out qualities, challenges, and ideal interplay of different support groups</td><td>6, 7</td></tr>
<tr><td rowspan="2">STUDY 2</td><td rowspan="2">Identified pathways and design requirements for technology-enabled support to promote resilience in UMY through supporting their mentors</td><td rowspan="2">7</td></tr>
<tr><td>(2) Role and characteristics of resources</td></tr>
<tr><td colspan="2"></td><td>STUDY 3</td><td>Identified pathways and design requirements for technological resources for UMY that integrate into UMY's social-ecological environment</td><td>8</td></tr>
</table>

Figure 9.1: Overview of the theoretical elements of the social-ecological model of resilience mapped to the empirical data and design framework.

### 9.3.1 Underlying Basis Showing UMY's Social-ecological Context

The underlying basis of the social-ecological design framework builds the interrelationships of the current social-ecological context in a synthesized and structured manner. This basis is an instantiation of the social-ecological model of resilience by Ungar (2008, 2011, 2012a, 2012b) and Ungar et al. (2013) for this context (see *Chapter 6*) and shows: (1) how policies and political regulations (macro-systemic factors) influence UMY's daily structure, create stressors, and set up particular social and physical environmental characteristics; (2) how direct social systems interplay with UMY (and their bio-system); (3) how social systems, such as direct (micro-systems) and indirect systems (exo- and meso-system), interplay to provide support; (4) and factors that change over time (chrono-systemic developments).

### 9.3.2 Mapping Opportunities for Technology-enabled Support

Using this map of the social-ecological context as a base layer, I elaborated opportunities for technology-enabled support. As part of identifying the technological opportunities, I drew on examples from different HCI research fields to identify design mechanisms that could be translated and adapted to support this context's design needs and requirements (e.g., in *Chapter 8*, one design example builds on research on ML solutions to envision solutions that tailor the behavior of mobile apps to the social and physical environment). I then mapped (1) how to integrate technology-enabled resilience support in these relationships, (2) with which factors the technology would interplay (i.e., be influenced by or influence and connect to), and (3) which new support systems technology could enable (e.g., online support platform as a new exo-system of the micro-system *person of trust*, cf. *Chapter 7*, or advocacy groups as new micro-systems aiming to influence the macro-system, cf. *Chapter 8*).

As this thesis is in the area of HCI, I focused on technological components; nevertheless, the opportunities could also be non-technological components such as policies and organizational

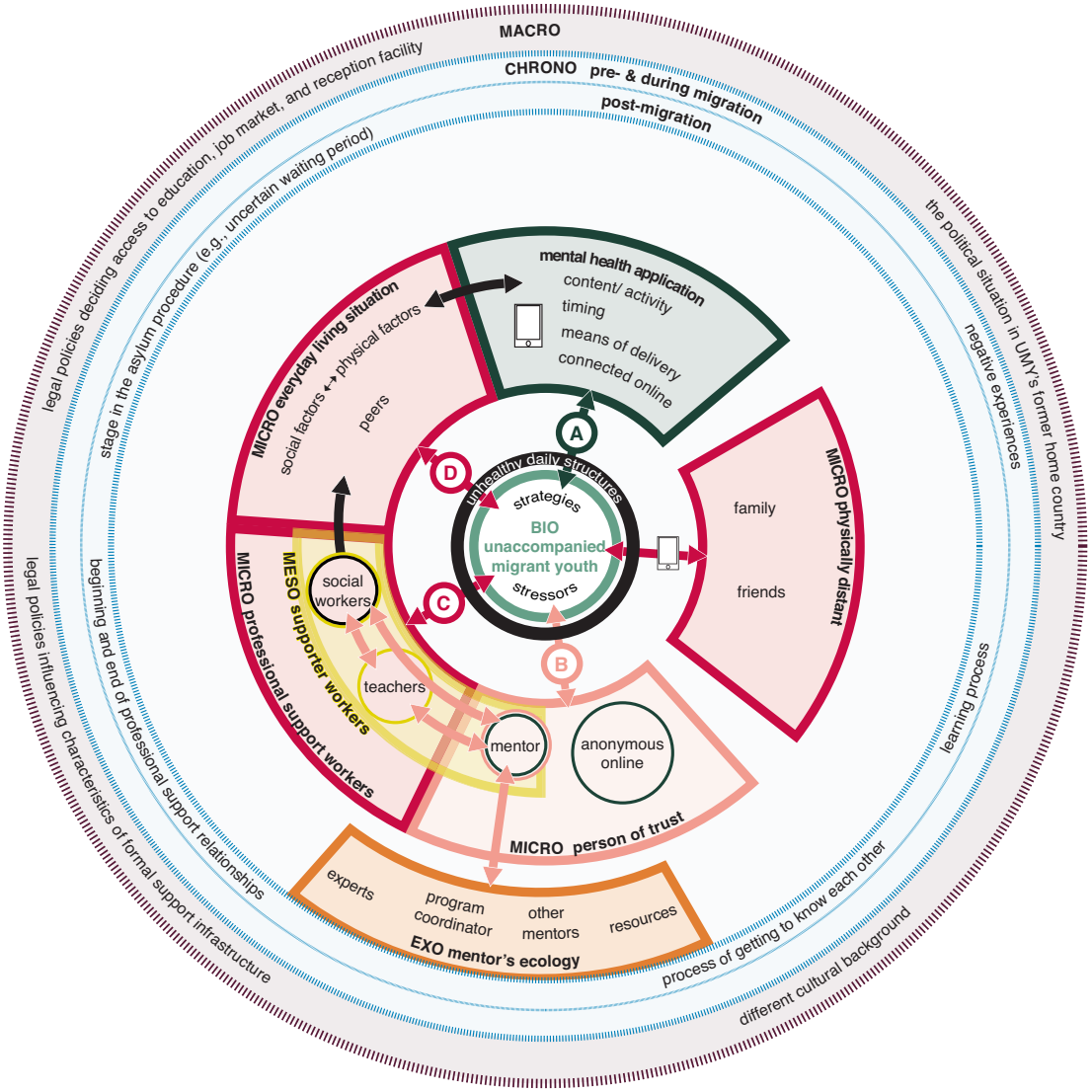



Figure 9.2: The figure shows the detailed social-ecological design framework for resilience promotion for UMY. This version combines maps presented in *Chapters* 6, 7, and 8. A detailed view on intervention pathways B (*Supporting mentors in providing support*) was presented in *Chapter* 7. A detailed view on intervention pathway A (*Supporting the bio-system*) was presented in *Chapter* 8. Intervention pathways C and D have not been researched in detail in this thesis, but there are opportunities for future research.

changes. In addition, technological opportunities are embedded in these complex interrelations, and certain conditions are needed so that technological solutions work, such as enabling policies and trained people. For instance, in a study on preventative telehealth-supported services, researchers faced several challenges to be able to conduct their study, such as the lack of resources and expertise to install the equipment in people's homes (Fitzsimmons, Thompson, Hawley, & Mountain, 2011). Similarly, despite many technological opportunities in the context of NGOs, organizational factors complicate the integration of technology (Saeed et al., 2008). Thus, technology represents a small part of what is needed for suggested technological interventions to function.

## 9.4 Designing with the Social-ecological Design Framework

Developing and applying the social-ecological map as a framework across the studies of this thesis led to understanding how to design and research with this framework. When adopting a social-ecological lens, designers and researchers zoom into one area to design for this specific area but always need to have the perspective of the rest of the social-ecological context in mind. This approach differs from the more common design approach where the designers or researchers zoom in and focus on one problem space. Examples for focusing on one problem space include research on how to translate existing interventions into the digital space (Bardram et al., 2013; Schroeder et al., 2018) or how to adapt content to be more culturally appropriate (Shala et al., 2020; Spanhel et al., 2019).

This more common way of zooming in as part of the design process is comparable to zooming processes on a screen, where zooming into one area contributes to losing context and connections. In the context of screen design, designers explored solutions to help people perform navigating tasks while maintaining an overview when manipulating several mutually dependent control points in a visual workspace (G. Shoemaker & Gutwin, 2007) or interacting with large interfaces (Gutwin & Fedak, 2004). Similarly, the social-ecological design framework helps to maintain consideration of what happens in the whole social ecology; uncovers complex interrelation of social-ecological factors that would otherwise remain undetected; and expands the design space for opportunities for technology-enabled support.

Thus, zooming in with a social-ecological approach still means that solutions could focus on the individual (such as mental health apps) while accounting for factors in the social-ecological environment. For instance, when zooming into the UMY level (e.g., designing mental health apps), the designers and researchers must keep in mind what happens on macro- and micro-levels to prevent solutions from failing (e.g., how legal policies shape social and physical factors in the micro-system everyday living situation, cf. *Chapter 8*).

It is important to note that the figures (Figure 7.2, 8.7, and 9.2) visualizing the social-ecological interplay represent only a reduction of complex and dynamic realities. Even if the figures focusing on pathway B (Figure 7.2) and A (Figure 8.7) zoom in one specific area, there could be even more detailed maps for each sub-intervention point (e.g., navigating resources) showing a more detailed interplay. In addition, each map would need to be adapted to the individual situation of UMY (e.g., different constellations of micro-systems such as having a math tutor for a short period).

Nevertheless, the social-ecological way of thinking and process of zooming in and mapping the social-ecological relations helped to uncover different interplays and to design for the social-ecological context of UMY. By drawing across the process of zooming and mapping out the

social-ecological interplay as part of STUDY 2 and STUDY 3, I identified three possible approaches of how to design with the social-ecological design framework, which I will discuss in the following.

### 9.4.1 Building on and Creating New Relations

The social-ecological design framework for resilience promotion could help design solutions by identifying where technology could build on and create new relations and, in turn, support resilience promotion in the social-ecological environment. One example is intervention pathway *Supporting mentors in providing support* (cf. B in Figure 9.2). As described in *Chapter 7*, building and creating new relations with technologies enable the capacity of the mentor's network to provide support. Intervention pathway B1 (supporting mentors in navigating resources), for instance, becomes enabled through the connections at B4 (improving exchange with the exo-system consisting of a community of mentors and experts)(see Figure 7.2). One approach to designing with the social-ecological design framework thus involves integrating and designing technological solutions that support or build on existing relations and/or create new relations, which increases the capacity of the social-ecological environment to provide support.

This approach opens a whole design space for integrating technology-enabled mental health support into the everyday lives of people. Some research projects have begun to adopt this direction. Researchers explored how technology could enable support by creating connections with direct support systems through peer support systems (O'Leary et al., 2017, 2018) or providing the option to exchange with a person of trust inside a mental health application (Shala et al., 2020). Outside of the mental health space, researchers also highlighted the importance of taking a network capacity approach and proposed design opportunities and challenges (Ammari & Schoenebeck, 2015; Schorch et al., 2016; Tixier & Lewkowicz, 2015, 2016; Yang et al., 2017). Here, the suggested design opportunities and future directions mainly focus on one intervention area of the whole social-ecological environment (namely supporting or establishing an exchange between informal caregivers such as parents). Some suggested design opportunities and future directions also focus on other intervention areas, namely the meso-system (coordination with different support workers, c.f. (Schorch et al., 2016)) and macro-system (supporting advocacy work, cf. (Ammari & Schoenebeck, 2015). The social-ecological design framework of this thesis adopts a broader social-ecological lens (e.g., by considering the roles and challenges of more distal social systems and macro-systemic factors) and maps the interrelationships in a systematic and structured manner. The framework thereby helps identify connections that would otherwise remain hidden (e.g., uncovering mentor's social ecology to design support for UMY).

### 9.4.2 Accounting for Different Influences and Interplay Inside and Across Social-ecological Systems

The framework also helps designers and researchers identify and account for social-ecological interrelationships and influences that would otherwise remain invisible but could hinder resilience promotion or/and the usage of technological solutions. *Chapter 8* illustrates how policies shape the social and physical factors of the micro-system (micro-system *everyday living situation* in Figure 9.2), which in turn impact UMY's capability to successfully use mental health apps (intervention pathway A in Figure 9.2) in this micro-system. After uncovering this influence, *Chapter 8* presents how technological solutions could tailor the timing, content, and means of delivery to fit the social and physical factors of this micro-system. The framework helped uncover this constraining interplay of social-ecological factors and identify solutions for mitigating this interplay and enabling the usage of technological solutions. In addition, uncovering the connection

between the constraining social and physical factors and policies helped to suggest possible solutions that advocate for changing these policies.

Mapping the different interrelationships and uncovering complex and hidden influences might become further essential in marginalized contexts and when different social contacts interplay with the usage of technological solutions. In these cases, the interplay of social-ecological factors might become further complex and intertwined; for instance, language and terms change when talking to different people (Kleinman & Kleinman, 1985), and shame related to mental health stigma becomes a greater factor when private spaces to use technological solutions are not available (Lattie et al., 2020). Low socioeconomic situations might lead to more complex social-ecological relations than in the context of UMY. In addition, marginalized communities such as UMY might struggle to identify and communicate these barriers as part of co-design processes, as they consider it their responsibility that technological solutions function. In STUDY 3, for instance, participants suggested solutions for how UMY must change their lives to be able to use technological solutions (cf. *Chapter 8*); thus, the design framework could help designers and researchers identify such negative and constraining social-ecological influences.

### 9.4.3 Designing for the Long Term

The framework also helps design and research mechanisms that make the technological systems more resilient so that the capability to provide support and navigate and apply resources becomes sustained in the long term (cf. *Section 6.2.2*). Practically, this means that technological solutions must contain features that prevent technological solutions from further contributing to stressors and strains (e.g., managing workload among supporters, cf. *Chapter 7*) and that advocate for changing the constraining social-ecological factors (e.g., collecting data to advocate for better living conditions, cf. *Chapter 8*). This approach is needed to create a social-ecological environment in which UMY can thrive in the long term and to prevent technological solutions from failing in the future. Such failure is very likely to occur in this context of UMY since it undergoes ongoing, often unforeseen changes and disruptions stemming from the macro-systemic situation and changes.

Related research also identified risks for changes and disruptions and the need for technological solutions to react to and prevent them. Murnane et al. (2018) identified the importance of accounting for the dynamic changes in the social ecology in the context of people with severe mental illnesses, including accounting for transition phases (e.g., changing doctors) and alterations of relationships (e.g., changes of trust, abusive relationships) when designing technological mental health management tools. Brown et al. (2019) highlight the risk that technology could cause disruptions since technological solutions are built on the labor of volunteers and helpers who are at risk of becoming overburdened. In the context of communities with lower socioeconomic status, Pendse et al. (2019) note that sudden lack of access to care could be disabling, and thus, interventions need to be sustainable to prevent potential harm; however, the challenge of designing for the long-term is that infrastructures remain invisible as long as they work well (Semaan, 2019). The social-ecological design framework could support the earlier detection of why and how systems and support solutions could break down. One step in this direction could be identifying events and regulations that could cause such changes and disruptions (e.g., changing doctors (Murnane et al., 2018) or – in the context of UMY – having to leave the reception facility, cf. *Chapter 3*). The social-ecological design framework could aid this goal by mapping all social-ecological influences, including the chrono-systemic factors and connections that are under the most strain.

## 9.5 Broader Applicability of the Social-ecological Design Framework

After reflecting in the previous sections about how to research and design with the social-ecological design framework, this section takes a step back and examines the broader applicability of the social-ecological design framework and how it and the findings of this research contribute to the research field. By structurally mapping the potential interplay between technological solutions and support systems, the social-ecological framework (Figure 9.2) provides an important starting point for researching mental health technologies in the context of UMY in Vienna and other refugee contexts. For this research focus, the findings of this thesis deepen the understanding of how the social and physical environment shapes the usage of technological resources; how the technology would integrate and interplay with the local and distant social ecology; and how to design for these considerations. In addition, the findings deepen knowledge regarding the role and needs of the social-ecological systems when providing support and how to work towards an environment where technological solutions and different support systems work together.

Because the social-ecological framework (Figure 9.2) was developed for a specific context, namely a city context (Vienna) in a high-income country (Austria), and for a specific group of refugees (UMY), the constellation and interplay of systems would differ for refugee communities in other contexts. Nevertheless, I would argue that an adapted social-ecological framework could be beneficial to other contexts. Figure 9.3 shows the framework's core elements and presents questions that other researchers and designers could use to create a similar framework for other contexts. This structure is close to the definition of social-ecological system by Bronfenbrenner (1979), Ungar (2008, 2011, 2012a, 2012b), and Ungar et al. (2013). A few HCI researchers have used the social-ecological systems defined by Bronfenbrenner (1979) as a lens to understand the role of different social actors in promoting healthy eating habits (Hirsch, Lim, & Otten, 2016), information brokerage (Pina et al., 2018), providing emotional support (Vacca, 2017), and managing severe mental illnesses (Murnane et al., 2018). This thesis's social-ecological design framework and research focus more on the interrelationships, connections, and influences that interplay with resilience promotion. The ways to design with the framework (described in the previous sections) show that it provides a starting point to identify unique social-ecological factors and interrelationships, which could inform new pathways of interventions and design requirements for designing technology-enabled resilience support. In the next section, I discuss areas in HCI where I observe the most potential for transfer and how the social-ecological framework might change and support researching and designing in these areas.

### 9.5.1 Designing for Refugee and other Marginalized Contexts

I argue that the social-ecological design framework and insights from researching with the framework in this context could inspire and inform research on technology-enabled resilience support in other refugee and marginalized contexts. When transferring the framework into other contexts, the macro-systemic situation (including the socioeconomic and legal situation) might significantly shape the structure of the different social systems (micro-, meso- and exo-systems) and their ability to provide support. Even if each context brings unique social-ecological conditions, a helpful differentiator between the potential ways of transferring the framework could differentiate between LMICs and HICs. One argument for this is that in the field of mental health promotion in the refugee context, researchers differentiate between LMICs and HICs since different economic situations and contextual challenges require different solutions to promote mental health (Eruyar et al., 2018; Reed, Fazel, Jones, Panter-Brick, & Stein, 2012). Based on my understanding of

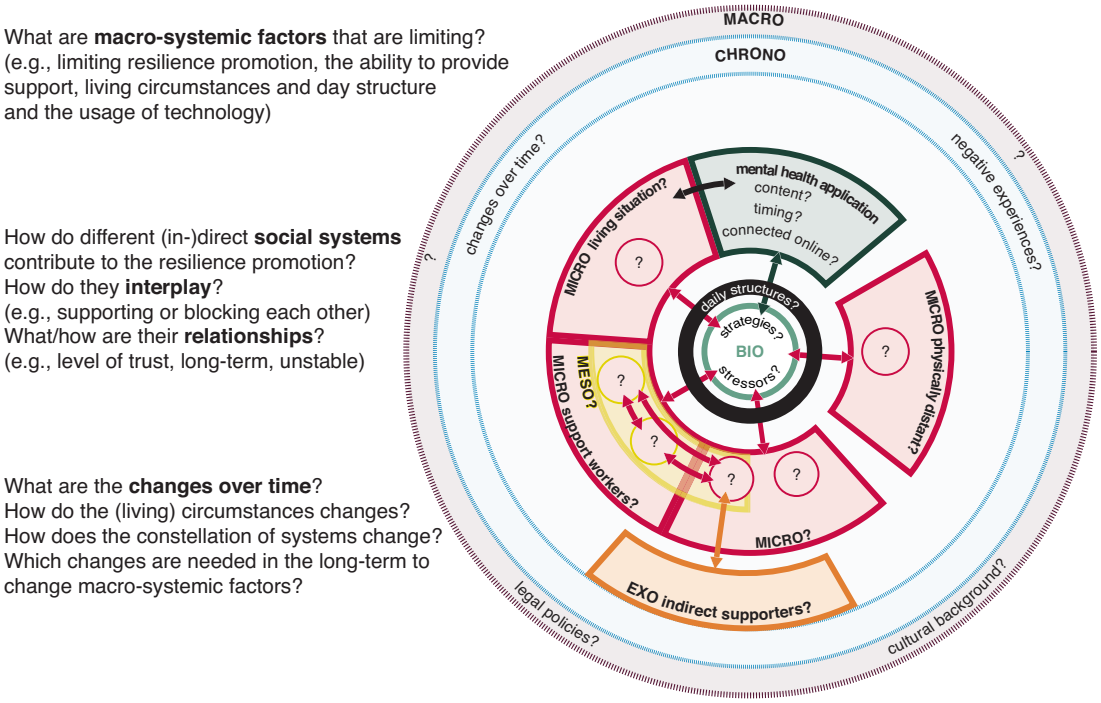



Figure 9.3: Core elements of the social-ecological framework and guiding questions to adapt the framework to other contexts.

the HIC context of this thesis, I propose that there might be the most similarities between the framework of this thesis and a version adapted to other refugee contexts in other EU countries, because the policies and structure of care systems might best correspond to those in Austria. In recent years, different initiatives established mentoring programs in Italy (UNICEF in Italy, 2019), Spain (European Website on Integration, n.d.), and EU-wide (Terre des hommes, 2019). In some EU countries, however, UMY are mainly assigned to foster care (Sirriyeh & Raghallaigh, 2018), and the structure of mentoring programs and NGOs probably differ locally. These factors could lead to different micro-, exo- and meso-systemic factors and interrelations.

In refugee contexts in LMICs, the macro-systemic situation (including the socioeconomic and legal situations) and the individual's social role might make the relations and conflicts of social-ecological systems further complex, which makes it more challenging to design technology-enabled resilience support. Research in the context of refugee camps and refugee communities in LMICs indicates that the capability of refugees and their support systems to navigate, negotiate, and apply resources is even more limited than in the context of this thesis; for instance, while costs for internet access are high in Egypt, policies (macro-systemic factor) do not allow refugees to apply for access to landlines at rented homes (Burchert et al., 2019). In addition, a study in refugee camps showed how refugees lack agency which leads to the inability to self-mobilize and leverage their coping mechanism, such as to access food (Talhouk, 2020; Talhouk et al., 2020). Supporters also lack agency and power to provide support; for instance, design researchers aimed to leverage their social capital (thus their exo-system) to install semi-dry latrines, provide winter

aid, and supply clean water, but the local NGOs were unable to respond to these needs (Talhouk et al., 2019).

Macro-systemic situations might also further complicate the relationship between refugees and actors in potential micro-systems. In a research project on computer clubs, students volunteered in a technology-based youth mentoring program in Palestinian refugee camps for one semester (Yerousis et al., 2015). Because some of these students grew up in or came from these camps, they would be great role models for the children at the club; however, as the students struggle with the stigma (caused by the macro-systemic situation), they prefer not to be connected with the camp. The study also showed that the children in the camp built a closer relationship with the volunteers, where more interpersonal relationships emerged. Thus, such social contacts could also become a *person of trust* (cf. MICRO *person of trust* in Figure 9.2) (even if the relationship is short-term) and pathways to integrate (technology-enabled) mental health support.

Research studies also indicate that different social roles and norms lead to different levels of power and access to technological solutions. Due to the lack of resources paired with limitations set by social norms, women can often only access technological devices of male family members in LMICs (Burchert et al., 2019), which could hamper designing private and secure interactions with mental health applications. In LMICs in non-refugee contexts, studies identified similar access barriers (cf. (Naslund et al., 2017; Pendse et al., 2019)) and that these barriers become further complicated by other social-ecological factors such as social norms (cf. (Mudliar, 2018)).

When translating the social-ecological framework to refugee contexts and LMICs, it is important to focus on understanding how macro-systemic factors might shape the social and physical factors of people's bio- and micro-systems, including infrastructural barriers, social norms, and agency to leverage their skills and social capitals. The social-ecological framework could help identify and develop technological solutions that manage these interrelationships and influences and thereby become more likely to be used despite the marginalization.

Many social-ecological factors hindering refugees' capability to cope with their situation and use technological resources can also be found in other marginalized contexts. Populations such as formerly incarcerated individuals (Ogbonnaya-Ogburu, Toyama, & Dillahunt, 2019) and homeless young people (Woelfer & Hendry, 2012) and mothers (Le Dantec et al., 2011) face similar challenges related to accommodation and stress introduced by social media and unhealthy and unsupportive social dynamics (such as UMY in this research) that may limit their ability to engage with mental health technologies. In addition, usage of technological systems is bound by macro-systemic factors such as local homeless care guidance (Le Dantec et al., 2011) and re-socialization systems (Ertl et al., 2019), which marginalized communities and support workers have almost no impact on changing. Creating a social-ecological framework for marginalized contexts could thus help identify influences and conflicts of different social-ecological systems, which impacts how technology-enabled support needs to be designed to promote resilience from a social-ecological approach.

### 9.5.2 Designing a Facilitative Environment in Refugee and Marginalized Contexts

While the previous section focused on the applicability to promote mental health, I also propose that the framework might be helpful to apply beyond the mental health focus. Especially in marginalized contexts, the capability to navigate social and welfare services, such as housing and educational services, are as essential to promoting well-being as navigating healthcare services (Ungar, 2013; Ungar, Liebenberg, Dudding, Armstrong, & Van de Vijver, 2013). The findings of

this thesis also showed that support by the social-ecological systems extends the focus on mental health; for instance, professional support workers and mentors promote resilience in UMY by supporting them in non-mental health areas (e.g., helping UMY with their education or personal development, cf. *Chapter 5*). In the context of HCI and refugees, many proposed technological support tools indirectly contribute to promoting resilience from a social-ecological approach and could be viewed as resources that help refugees meet their needs by supporting the resettlement process and integration into the host community to rebuild social capital (A. Almohamed et al., 2017, 2018) and cultivate supportive community structures (Weibert & Wulf, 2010).

In the context of HCI and refugees, researchers such as Almohamed et al. (2017, 2018; 2021) and Talhouk et al. (2020) worked with theories and frameworks such as social capital (Putnam, 2000) and community resilience framework (IFRC, 2014), which also take a social approach. These approaches and the social-ecological design framework for resilience promotion complement each other and take different foci. The theory of social capital focuses on the different features of social organization that facilitate coordination and cooperation for mutual benefit (Putnam, 2000). Research has shown the importance of social capital for community resilience (Poortinga, 2012; Kerr, 2018). There might also be a connection between the features of social organization (e.g., strong social ties between a mentor and other support workers) and the outline of the social-ecological design framework for resilience promotion. The framework structures mainly existing and a few new social ties (e.g., anonymous online support) (cf. *Section 9.3.1*) with the focus on their role in supporting resilience in UMY and elaborates them with opportunities to promote resilience. The social-ecological design framework for resilience promotion provides a first understanding of how to support the negotiation of UMY's social capital for supporting the individual psychological wellbeing. Community resilience and social-ecological resilience prioritize different needs. The concept of community resilience shifts the responsibility on the community and away from the organization and prioritizes the community resilience above the individual resilience (Talhouk, 2020). In contrast, the social-ecological resilience focuses on mental health and prioritizes the individual resilience above the community resilience, and puts the responsibility on the social-ecological environment, including macro-systemic factors. Thus, the social-ecological resilience framework focuses specifically on the individual mental health, which might be overlooked when following a community resilience approach.

The findings of this thesis also uncovered tension between being mentally resilient and integrating well (e.g., performing well in school, having an occupation, cf. *Chapter 5*). This tension between being mentally healthy and performing well in life occurs in other marginalized contexts. Pendse et al. (2019) use physical health and education as examples of two areas where especially in the contexts of low resourced communities, researchers need to integrate the mental health lens into their work. The social-ecological design framework could inspire mapping resources outside of mental health and identify potential tensions between the aim and function of mental health resources, obligations, and stressors (caused by macro-systemic factors such as legal policies and socioeconomic status). The structure of the design framework could help (1) map the design space of an eco-system of resources promoting indirectly social-ecological resilience and (2) potential tensions and conflicts in the social-ecological environment and between the purpose of different resources.

### 9.5.3 Designing for Mainstream Contexts

I further propose that researchers could benefit from using a social-ecological map of their context as a design framework in mainstream contexts (e.g., designing mental health technologies for the general population in the Global North), especially in contexts where different systems interact to

support individuals, where navigating and applying resources must be simple and where the mental health of supporters is at risk. A social-ecological framework adapted to these contexts could function as a tool to deepen the understanding of the different systems and inter-relationships which play a crucial role in providing support in different areas.

As mentioned previously, researchers in the field of mental health technologies highlight the importance of taking into account the sociality of engaging with mental health (Lattie et al., 2020) and self-management tools (Burgess et al., 2019) when designing technological solutions. The research of this thesis adds to this by exemplifying how to potentially use the social-ecological structure of a context to design systems that better integrate into the social ecology and to develop conceptually new solutions that build on and support managing influences of the social ecology.

In addition, as with the mentors and their role in support of UMY, there is an increasing interest in promoting the capacity of networks via peer support systems in both the contexts of mental health support (O'Leary et al., 2017, 2018) and informal caregiving (Ammari & Schoenebeck, 2015; Tixier & Lewkowicz, 2015, 2016; Yang et al., 2017); however, similar to the context of UMY, peer-support systems can potentially overburden the individual. Many studies show that informal caregiving is emotionally demanding (e.g., (Y. Chen et al., 2013; Lederman et al., 2019; Schorch et al., 2016; Tixier & Lewkowicz, 2016)). The design framework, particularly the focus on designing for the long-term, might help other designers explore solutions that support that both the systems and their individual actors stay resilient and mentally healthy in the long term.

### 9.5.4 Applying the Framework Across Different Phases of the Research

Besides identifying intervention pathways and designing new solutions with the social-ecological framework, researchers and designers could use a social-ecological lens during different phases of researching and designing future mental health technologies, namely when (1) planning and designing studies and their activities (e.g., activities in co-design workshops) and (2) analyzing the study or existing technological solutions.

The aim to develop an adapted social-ecological framework could inform the design of the study. In the initial phase of planning a study, the concept of different systems could help identify potential stakeholders. Researchers and designers could outline a first draft of the structure based on their initial research on the context before contacting stakeholders. Based on this structure, they may then recruit different stakeholder groups. In the work with the stakeholders, the social-ecological framework could inform the design of research activities. In the case of this research, I could have used the framework's structure to map different sets of social-ecological factors with the interview partners, which might have led to a more detailed version of the framework. Professional support workers could have added more details about the meso- and exo-systems that support their work. Workshop activities such as designing persona and storyboards could be similarly adapted to collect more information about different social-ecological systems. Even if the storyboard activities of this research project contributed to identifying different social-ecological systems and their characteristics, the activities could have been more targeted, such as by creating a different persona for different actors. When designing these workshop activities, it is important to consider that participants, such as the UMY in this study, might not be aware of limitations set by the macro-system or might struggle to articulate and identify the macro-systemic constraints that they experience for different reasons.

The social-ecological framework could also support designers, researchers, and psychologists in analyzing and structuring empirical data of the context and in analyzing/assessing mental health technologies. With the help of a context-specific version of the framework, designers, researchers, and psychologists could analyze how existing solutions could integrate in the interplay of social-ecological systems and could explore solutions that account for and mitigate constraining social-ecological influences. In addition, designers and researchers could identify potential solutions and features by analyzing commercially available apps and could suggest how to improve their design based on understanding the relational network of social-ecological systems in which the app will operate.

While the social-ecological design framework is developed and applied in the context of design and research, there is potential that other stakeholders working in the field of mental health and refugee could also benefit from using the framework; for instance, the current design framework developed for Vienna, Austria, could support practitioners and advocates to identify pathways for interventions, improve current services, and advocate for change.

## 9.6 Reflection on Quality Criteria

Before reflecting on this research's challenges and limitations, I first revisit the quality criteria towards which I oriented my work (cf., *Section 4.5*). In the following, I reflect on how I met the criteria of informed, reflexive, abundant, plausible, resonant, and transparent research.

### 9.6.1 Informed and Reflexive

My existing knowledge of design techniques, methods, technological possibilities and limitations *informed* the research of this thesis. I gained this knowledge through previous work and training in fine arts, media design, interaction design, HCI, and psychotherapy. To increase my ability to reflect and my awareness of my own prejudice, I attended training in transcultural competencies and studied literature on racism and data biases. My stance in the research was also informed by being a mentor of a female UMY, from which I gained significant implicit knowledge about the local situation, challenges, and needs. Although I aimed to separate my private and researcher role, this knowledge also shaped my understanding.

To be aware of how this informed the research, it was important to be *reflexive* across the whole research project. As a design researcher working under the constructivist stance, I recognize and use the subjectivity of the research, namely that I, as a researcher, bring my own views, perspectives, and passions, which influence the sense-making process (Braun & Clarke, 2013; Mackenzie & Knipe, 2006). This subjectivity influences the construction of knowledge (Meyer & Dykes, 2020). The interaction and relationship between me and the researched context and participants contribute to a fruitful and reciprocal learning process (Lincoln & Guba, 1986). Utilizing this subjectivity and situatedness helps diversify perspectives and understand multiple viewpoints (Meyer & Dykes, 2020). Reflexivity is also the key quality of the chosen analysis method of reflexive thematic analysis (Braun & Clarke, 2012, 2013), namely that the researcher reflects on their subjectivity and values and how they inform the analysis. Throughout the research project, I regularly made reflective journal notes documenting my thoughts and when I experienced challenges in my role as a mentor. In addition, reflexivity was supported by exchanges with colleagues, my thesis supervisors, an ethical advisory board, and an external supervision board. In addition, Reem Talhouk, who also works in the HCI and refugees research

area, supported the facilitation and analysis of the co-design study with UMY (STUDY 3) as well as the reflection process beyond this study.

### 9.6.2 Abundant, Plausible, Resonant, and Transparent

To assess the quality of the insights gained in this research project, I reflected on the criteria of being abundant, plausible, transparent, and on how the outcomes resonate with the research community in HCI (Meyer & Dykes, 2020). This research project is *abundant* since I collected a rich data set of different, diverse perspectives by involving different stakeholders through co-design methods. The knowledge claims are *plausible* since I grounded the insights in this rich data and related work and presented the applied methods, gained datasets, analysis outcomes, and my reflection in a coherent presentation. I gained additional insights and reflection through exploring the *resonance* of this research through different forms of feedback and discussions as part of the publication process, presentations within the research community of HCI and psychology, and collaborations and informal exchanges with colleagues working in other refugee and mental health contexts. In addition, I shared these deep insights into a specific context in the form of a rich description of the qualities of the context and as *transparently* as possible by presenting quotes, the artifacts produced at the co-design workshops (STUDIES 2 and 3), and background information about the context. This detailed view of this context then contributed to assessing how these findings may be applicable or transferable to other contexts (Lincoln & Guba, 1986; Meyer & Dykes, 2020). To support the transfer of the knowledge gained in this context, I also reflected on the research studies and related literature regarding how the results could be transferable; in publications, I discussed where I observed opportunities for transfer and recognized the limitations of this research.

## 9.7 Challenges and Limitations

Across the research studies, I faced challenges and limitations which also impacted the outcome of this research, such as the identified challenges and design of the social-ecological design framework. I categorized these challenges and limitations into aspects concerning recruitment, challenges of the co-design studies, and the theoretical and personal lens.

### 9.7.1 Recruitment: Getting a Diverse Group of Participants Involved

Various reasons complicated acquiring a more diverse group of participants involved in the research study. The background of the participants might have influenced the topic raised in the research studies and thus the findings of the research studies and results of this research project.

#### UMY

UMY are a complex, heterogeneous group of young people from different cultural backgrounds, with different social norms, levels of digital literacy, and access to different social and support networks, education, occupation, accommodation, and other resources. While I aimed to recruit participants of all genders and backgrounds, the mental health topic and technology topics, requirement of certain language skills, and spare time to participate might have hindered UMY from participating in the study. In addition, *Section 4.2.2* explained that female UMY are especially difficult to reach. This research project included only young men who were mainly from Afghanistan or Afghans who lived in Iran, had a certain level of German skills, were mainly

still in the asylum-seeking process, and were interested in digital tools. These factors might have influenced which social-ecological factors were identified as part of the research studies and which issues in the social-ecological environment might have remained undetected. This might have also shaped the structure of the design framework.

Because this study only involved male participants, some challenges and complexities of UMY's social-ecological environment and bio-system might not have been identified that are especially relevant for women or LBTQI+ people. Related research in the contexts of HCI and refugees indicates that women might have a different social ecology and might cope with unique challenges that are important to consider in the design of technological solutions. Sabie et al. (2019) identified that challenges to access technology are amplified for women due to lower education, cultural issues, and their role in the family (e.g., only one member in the refugee family would usually acquire technical skills to handle all family tasks that involve technology). Talhouk et al. (2016) also noted gender-specific design requirements for services (e.g., women would feel more comfortable discussing personal issues with female-run services). Inside the refugee population, young male refugees often adopt a more empowered role of information wayfarers (Fisher & Yafi, 2018; Yafi, Yefimova, & Fisher, 2018).

The recruitment process occurred through local NGOs and mentors, which might have influenced which social-ecological support structures the UMY can access and that the recruited participants were probably integrated into a well-working reception facility. The professional support workers were interested in the further development of the care of UMY, had resources, and made time to engage in this study. This openness and motivation might also be reflected in the quality of their work, and thus the care that the UMY received might be more intense or more organized than at other reception facilities. In addition, being from Afghanistan might have influenced participants' experiences of the asylum-seeking process and related stressors. Research in Austria has shown that the asylum-seeking process takes longer for people from Afghanistan, who additionally have much smaller chances of a positive outcome. This insecure temporary resident status negatively impacts the (mental) health of asylum-seekers from Afghanistan (Kohlenberger et al., 2019). These factors might shape the findings, such as the outline of the structure and relations of the social-ecological map of this context; thus, issues and challenges of UMY who lack access to a well-working reception facility and/or a mentoring program might have remained undetected. The UMY involved in this research nevertheless represent a key group inside the UMY group, and UMY from Afghanistan especially face additional risks of mental illnesses due to their additionally complicated asylum-seeking situation.

### Professional Support Workers and Mentors

The topic of the research project and the time required to participate might have resulted in having only professional support workers and mentors who are open to the mental health technology topic and whose (work) situation allows them to participate in the study. At the meetings with NGOs to recruit participants, professional support workers rejected the idea of using technologies for mental health support as they thought that UMY already too frequently used mobile technologies. They were also critical of the overall refugee situation on the political level, and the disinterest in mental health technology might have led to them not participating. In addition, due to the topic, mentors who participated in this research might have been more aware of challenges regarding mental health support and experienced needing support.

In addition, due to the macro-systemic regulations, it is rare for professional support workers to have the time and resources to participate; nevertheless, the employer/NGO of almost all professional support workers (except for two persons) supported participating in the study and

enabled the interviews to occur during the work time. This situation made it easier for the professional support workers to find the resources to participate; however, the support and flexibility of the employer/ NGO might also indicate that at this workplace, a well-working infrastructure is in place which supports their employees, which thus might lead to a more ideal image of the current support structure and a failure to identify more complex issues. This thesis nevertheless involved many experts from different organizations who were aware of the situation of their colleagues at other organizations, and these experts helped uncover critical challenges and gaps caused by the macro-systemic situation.

### 9.7.2 Engagement

I also faced different challenges concerning engagement and the outcome of the co-design process.

#### Conflicting Values and Interests

Each stakeholder, including UMY, mentors, and professional support workers, have their own values as individuals, which I as a researcher and designer need to be aware of and reflect on how they impact and become negotiated as part of the design and research process. Mentors and mentees might have conflicting values and interests (such as different opinions on what is essential for the mentee's development, e.g., achieving graduation vs. acquiring a job to earn money). In addition, not all mentors shared the same values and interests; nevertheless, I designed STUDY 2 (co-design workshops with mentors) based on my assumptions of certain values of mentors, namely the value of supporting others. This assumption led to the focus on designing a guidebook for other mentors. In addition, the research project was initiated by TEAM ITN program funded by the European Union's Horizon 2020 program. The funding agency behind this research project and their values and interests thus also impacted the research project since I had to work in their set framework and negotiate how I shaped the research project within it.

#### Challenges Overcoming Language Barriers

I faced different challenges when applying strategies to overcome language barriers. First, it was difficult to acquire an accurate translation of the workshop material and informed consent sheets. Second, I was not able to read and verify the translation, which caused additional challenges. According to the participants, the background information of the Dari version of the informed consent stated that the technology supported people who ran away from their home country instead of having to flee their former home country, which irritated the participants since they were forced to flee. Third, the issues regarding translation were further complicated regarding mental health topics. The literature on mental health support for refugees, includes an ongoing discussion about involving translators in therapy, which also causes challenges due to the stigma of mental health and power relationships in different communities.

#### Empowering Participants

Although I aimed to give stakeholders the freedom to shape the study, there was still a power inequality. As part of the TEAM ITN program, I led the research project, and thus, had some power over the structure of the study within the framework of the TEAM ITN program and performed all coordination and facilitation work. As part of the co-design workshops, I initiated the participation and configured the overall structure of all workshop series.

In addition, the societal and political situations as well as my and the participants' background led to power inequality. UMY might have previously experienced discrimination and racism and are under constant pressure to fulfill societal expectations, fit in and please authorities. As Spiel et al. (2018) pointed out, the researchers' bodies shape the interaction with participants. The researchers might have been perceived as authoritarian, leading the participants to try to please the researchers (the workshop facilitators and me). In addition, I also embodied a white and privileged person, which also might have contributed to unequal power relationships that were impossible to overcome. While I aimed to empower UMY to make decisions and lead the activities at the co-design workshops (STUDY 3), I observed different signs of power inequality; for instance, participants repeatedly asked for my opinion and preferences and wanted me to make decisions. In addition, the co-design workshops of STUDY 3 were conducted in English, German, and Arabic and not in the native language of most participants, which was Dari. In contrast, at the co-design workshops with mentors (STUDY 2), the mentors did not hesitate to communicate their interests and strong opinions about how they would like to participate in the discussion, such as by rejecting to perform design activities as this was my task in their opinion. At the co-design workshops with UMY (STUDY 3), I tried to empower participants by repetitively asking about their opinions and preferences and emphasizing that I would like to hear their opinion when they asked about mine. In addition, co-facilitating these workshops with Reem Talhouk contributed to disrupting the power inequality. Reem Talhouk is from Lebanon, works as a researcher in the UK, and does not speak German. Participants taught Reem a few words in German and different information about Vienna and Austria. In addition, participants sometimes translated German conversations and content to Reem.

In addition, I also embodied a female person. Even if there were also male and non-binary researchers present at the workshop, this might still have impacted the topics UMY (who identified as male) raised and the results. For instance, in STUDY 1, one male social worker reported how one UMY asked for advice regarding a message by a girl as this conversation did not happen in a set context such as school. However, this topic was not raised by UMY as part of the studies. Only one participant talked about his friend's conflict with his female friend/partner at STUDY 3. Thus, a micro-system representing a partner/dating life and corresponding interplay, challenges, and relations is missing in the current version of the social-ecological framework.

### Expectations and Outcomes

A common challenge of co-design studies is that participants often do not benefit from the main outcomes of the workshop, namely research findings and design implications, as they focus on future technologies (Vines et al., 2013). In addition, the explorative nature of RtD complicates explaining the exact outcome and thereby manage participants' expectations. This aspect was especially challenging in the context of this research since UMY face many challenges and have a high need for mental health support but do not receive the support they need. Although I aimed to manage their expectations, the situation in this context might lead UMY to have too high expectations towards the outcome of the co-design workshop. Conversations with UMY uncovered their wish to have something that helps and alleviates all their problems away. As part of these conversations, I constantly tried to manage their expectations, find alternative support solutions, and point them towards resources available in Vienna/ online.

In addition, it was vital for me to design the involvement of participants in a way that there was an immediate and tangible outcome for them. For the co-design workshop with mentors (STUDY 2), the outcome was a guidebook that was printed and shared with a local mentoring program and is now used by the program coordinators as part of the offered training and meet-ups. The

design of the co-design workshop with UMY (STUDY 3) focused on teaching different design techniques, distributing an official attendance certificate, and making existing apps more accessible by financing them; nevertheless, as a researcher, I gained the most insights from this participation and the co-design studies.

#### Long-term Engagement

A long-lasting exchange with participants is ideal for the type of research I conducted; however, due to the funding agency's policy, I had a 6-month secondment in the UK. I aimed to stay in contact with participants by sending newsletters. Organizing online workshops during the secondment was not possible due to the obligations during the secondment, and online participation is not well suited for research in the context of UMY; thus, the secondment led to a delay in the research project and the omission of some contacts I made as part of STUDY 1. In addition, UMY's political situation also made it challenging to engage UMY over a longer period. Constant changes and insecurity dominate UMY's life, and this changing and under-resourced situation might have also led to the omission of some contacts as NGOs might have lacked time to perform additional, voluntary activities besides their core work.

#### In-Depth Evaluation of Technological Probes

The knowledge of how technological solutions could shape and influence social-ecological interplay is based on understanding the social-ecological conditions through interviews and co-design studies. The only time technology was used was as part of STUDY 3 in-between the workshop sessions. Thus, the design requirements suggested in this thesis have not been evaluated by implementing technological probes. Korsgaard et al. (2016) highlight the importance of reintroducing a technical research interest into participatory design research as conducting studies where technology is also implemented into the everyday context uncovers technical challenges and requirements which otherwise stay undetected. In the case of this study, the lack of implementing a technological probe might also have led to technical challenges, socio-technical interplays, and design requirements staying undetected. Especially in the case of STUDY 2, this might have led to design implications that stay rather abstract.

### 9.7.3 Theoretical Lens and Background Assumptions

My theoretical knowledge, the dominance of theories from the Global North, and personal experiences shaped my background assumptions that, in turn, informed my interpretation of the findings of this study.

#### Theoretical Lens

The chosen theoretical lens and my background informed the outcome of this thesis. For instance, as part of my education as an interaction designer and design researcher at a Scandinavian design school, I developed a participatory world-view. This view might have led to seeing how political conditions play an essential role in the design of mental health technologies. In addition, I chose the social-ecological resilience model by Ungar (2008, 2011, 2012a, 2012b) and Ungar et al. (2013), as this focused on mental health and the individual resilience with a social-ecological lens. As pointed out in *Section 9.5.2*, there are other social approaches such as community resilience and social capital. In addition, there is a vast body of work on socio-technical systems theory which might provide beneficial lenses for the social-ecological resilience framework. For instance,

Appelbaum (1997) suggests questions among different elements of the socio-technical-systems – namely the environment, goals/tasks, structures, leadership procedures, people, and technologies. Another structure of modeling socio-technical systems is to map out the process and interplay between people, structure, physical system, and tasks (Oosthuizen & Pretorius, 2016). Such structure could also have informed the design of studies, data analysis, and the development of intervention strategies. While STUDY 3 highlighted how physical factors shape the interplay inside the micro-system *everyday living situation*, physical factors have not been a focus of the previous studies, and their role has not been uncovered in other social systems. This might not have been the case if I had applied socio-technical system theory as part of this thesis. Thus, the chosen theoretical lens impacted which factors may have been paid more or less attention to.

### WEIRD Research

The field of resilience research is vast, complex, and shaped by theories from the Global North (Adams & Estrada-Villalta, 2017) and studies that only involved people from Western, educated, industrialized, rich, and democratic (WEIRD) societies (Henrich, Heine, & Norenzayan, 2010). In addition, my Western, white, and privileged background and experiences also shaped how I read and interpret theories and situations. Based on my literature review and initial understanding of resilience research, I started with an individual approach to resilience. Informed by the empirical findings and further literature research, I later decided that the Ungar et al. (2012b, 2011, 2008; 2013; 2012a) was best suited for the research of this thesis. Although Ungar (2004) also critiques the dominant views on resilience research (Western notion and normative definitions), his theory is shaped by his experiences and education in a Global North context. These theoretical lenses also shaped the research outcome.

### Constantly Change Interdisciplinary Field

Another challenge was to conduct research in an interdisciplinary field that is constantly changing, which made it challenging to identify the most suitable theories in the context of resilience and mental health promotion in UMY. The research on resilience and mental health promotion in UMY and other refugee populations is constantly changing, and the definition, theory, and conceptualization of resilience changed during the course of this thesis. Researchers recently identified knowledge gaps in understanding the resilience mechanism of UMY and how to best promote resilience in UMY (Höhne et al., 2020; Rodriguez & Dobler, 2021). In addition, in the field of resilience research in general, researchers discuss different theories and approaches, such as in a recent book on multisystemic resilience (Ungar, 2021). The choice of theoretical lens shapes the outcome of this research, and new insights in the field of resilience and mental health technologies might have influenced the outcome.

### Learning Curve

I also underwent a learning journey that was needed to research in this cross-disciplinary context, which required learning and understanding the mindsets and language of psychologists. In addition, I also learned to reflect more critically on my prejudice and privileges, which also contributed to me learning to read and understand theories and situations differently. I also underwent a learning journey to find my identity as a researcher. Early in the research process and through conversations as part of the first recruitment process, I increasingly realized how local policies make it difficult for UMY to build resilience. The political situation caused frustration about the poor conditions. The lack of impact of my work to change these conditions made

it difficult to advocate the importance of this research focusing on technological solutions. By shifting the research focus to a social-ecological approach and the exchange with other researchers, I learned how to integrate a more techno-critical view into the research and incorporate these observations.

### 9.7.4 Personal Challenges: Researchers' Mental Health

By being an empathetic person and building connections with the participants as part of the research study, I also witnessed tragic personal stories, such as participants' threat of deportation or frustration with the inability to pursue their dream of studying at the university, which also affected my mental health. In addition, during the PhD period, the political situation in different countries worsened, along with the conditions and ways that refugees are treated, which in turn caused anger and sadness. My strategy to cope with these emotional challenges was to exchange about these challenges with other HCI researchers working in this field and experts as well as activists in Vienna. In addition, I followed self-care strategies and had access to a counselor.

## 9.8 Summary

This final reflection chapter summarized that all empirical studies of this thesis highlight the importance of adopting a social-ecological approach when researching and designing technology-enabled resilience support for this context. Recent work in the fields of mental health technologies and HCI and refugees support the arguments for using a social-ecological approach. Second, the chapter presented the updated version of the social-ecological design framework for resilience promotion for UMY and summarized three possible approaches to designing with the social-ecological design framework, namely by (1) building on and creating new relations, (2) accounting for different influences and interplay inside and across social-ecological systems, and (3) designing for the long term. Third, the chapter reflected on the broader applicability of the social-ecological design framework in other refugee and marginalized contexts, thereby proposing a helpful differentiator between LMICs and HICs. This chapter also presented reflections on the challenges and limitations of the research of this thesis.

CHAPTER 10

# Conclusion

## 10.1 Contributions Made

This thesis explored how to potentially support resilience promotion of one vulnerable and marginalized population, namely UMY, with the help of technology. Thereby, this research adopted an explorative approach, initiated research on mental health technologies for UMY, and paved the way for future research. As indicated in *Chapter 1*, three core knowledge contributions resulted from this thesis, which are summarized in the following. Subsequent sections then further elaborate on how these contributions could build the basis of future research.

### 10.1.1 C1: Descriptive Account Mapping out the Social-ecological Factors

The first contribution is a *descriptive account of this context mapping out the social-ecological factors* (C1). *Chapter 5* details how social-ecological factors support or hinder resilience promotion in UMY's everyday life in this context. Based on these empirical insights, *Chapter 6* presents a map of the social-ecological factors of this context. This map is an instantiation of the social-ecological model of resilience by Ungar (2008, 2011, 2012a, 2012b) and Ungar et al. (2013) and provides a structured overview of how different social-ecological factors currently interplay in this context.

This descriptive account provides an in-depth view into one exemplary context, helps better understand how resilience becomes promoted from a social-ecological approach, and identifies challenges. Although UMY are exposed to mental health risks and have unique support needs, only a few research projects have examined resilience in the context of UMY (see *Chapter 2*). Researchers in the field of mental health promotion and/or technology in the context of UMY and in general could build on this account to further research and develop both technology-enabled and non-technological support solutions as well as investigate how the context of this thesis differs from related contexts.

### 10.1.2 C2: Design Framework

The second contribution focuses on *understanding potential pathways and possibilities for technology-enabled support in this context* (C2). This contribution builds upon contribution (C1) regarding descriptive account mapping of the social-ecological factors and further elaborates the map with opportunities and design requirements for technology-enabled support. *Chapter 9* presents the final design framework, which provides an overview of the design space of technology-enabled resilience support in the context of UMY, the potential pathways for integrating technology-enabled support, and social-ecological factors that the design must consider or could build on when designing for these pathways.

In addition, *Chapters 7* and *8* present versions of the framework where each focuses on specific pathways for technology-enabled resilience interventions in the social-ecological environment of UMY. *Chapter 7* focuses on integrating technology to support UMY through supporting mentors and discusses how to potentially design technological solutions that account for and/or build on the different macro-, chrono-, meso-, exo-, and micro-systemic factors. *Chapter 8* focuses on integrating technological resources that directly support UMY and discusses how to design technological solutions to support managing and mitigating macro-, chrono-, and micro-systemic factors.

For the timely and important research topic of this thesis, the design framework provides a starting point and basis for researching, designing, and developing technology-enabled resilience support by helping to identify pathways for integrating technology-enabled support and social-ecological factors that are important to consider when designing solutions for these pathways. This framework is especially an important contribution to research on refugees, migration, and marginalized contexts, in which a growing body of work has recently focused on researching mental health technologies. The framework deepens the understanding of social-ecological factors that have been identified in related research and provides a structure to map the potential socio-technical interplay between technological solutions and the social-ecological factors. Building on the framework could prevent researchers and designers from developing and researching solutions that are likely to fail when not accounting for these social-ecological factors. This framework could instead support researchers and designers to develop innovative and supportive solutions.

In addition, the framework helps identify areas where future research could position itself by mapping the design space; for instance, while this research project mainly examined two areas in the social ecology of UMY, future research could further study other areas such as intervention pathways C and D in Figure 9.2. *Section 10.2.1* discusses where I observe most potential for future research in this design space.

### 10.1.3 C3: Understanding of How to Use the Design Framework

The third contribution is an *understanding of how to potentially use the design framework* (C3). *Chapters 7* and *8* present design examples that instantiate possibilities for how to design with a social-ecological lens. These examples also illustrate that the design framework enables developing individual solutions (e.g., the mental health apps) that are aware of the social-ecological interplay and relations and integrate them into this interplay. Even when focusing on one area (e.g., supporting UMY directly or through supporting the mentors), designers and researchers always remain concerned about the whole social-ecological interplay (e.g., factors that occur on the macro- or micro-level). The design examples in *Chapter 8* especially illustrate the subtle but essential difference between individual solutions designed with individual versus social-ecological lenses.

*Chapter 9* discusses how to use the design framework in other contexts and as part of different phases of research and shows that different research areas in refugee and marginalized contexts and care and mental health contexts could benefit from building on this work. *Chapter 9* also presents suggestions for how the framework could be used and potentially be adapted to other contexts, which hopefully inspires other researchers in the field of HCI and psychology to adopt a social-ecological approach.

Similar to the design framework (C2), both the design examples and reflections lay the groundwork for future work and hopefully inspire increasing interest in using a social-ecological lens when researching and designing (mental health) technologies. While the design framework (C2) provides a helpful structure for researchers, designers, and psychologists for researching and designing with a social-ecological lens, the suggested design examples (C3) illustrate how this approach can be instantiated in a specific solution. Each design example presented in *Chapters 7* and *8* could become individual future research projects and find their way from academia into the everyday life of UMY and their social ecology in the long term. In the field of HCI and psychology, researchers and designers could choose one of the design examples and further explore them in-depth (see *Section 10.2.2*). Insights gained in such studies could then inform and further detail the design framework (C2).

## 10.2 Future Work

In the following, I summarize the main areas where I observe the highest potential for future research to build upon this work and continue researching technology-enabled resilience support.

### 10.2.1 Further Detailing and Elaborating the Social-ecological Design Framework

As this research focused on how to better integrate mental health support into the everyday life of UMY, the empirical findings provided deep insights into the social-ecological interplay of UMY's everyday contexts. Future work could build on the current version of the design framework (C2) and extend the knowledge by investigating roles, practices, and challenges of other existing and potential micro-systems. It would be crucial, for instance, to deepen the understanding of mental health services and how to make them a more effective and proximal micro-system of the everyday social-ecological of UMY. This deepen understanding could also inform the design of design examples (C3) of this thesis (e.g., at the intervention pathways A and B) and open more opportunities for UMY to follow their help-seeking preferences (which is an important topic in the field of mental health technologies for young people (Pretorius et al., 2020)).

In addition, future research could build on the descriptive account (C1) and the design framework (C2) of this thesis and further detail other social contacts' roles, relations, and challenges. This thesis highlighted the influence of relatives and peers (micro-systems *physically distant* and *everyday living situation* in Figure 9.2) on the resilience of UMY. Future research is needed to deepen the understanding of their role and identify design solutions that support UMY in managing this influence to better benefit these micro-systems. In addition, STUDY 1 and STUDY 2 showed that micro-system *professional support workers* plays a role in promoting the resilience of UMY (intervention pathway C in Figure 9.2) and in supporting mentors in providing support (e.g., intervention pathway B3 in Figure 7.2). Understanding professional support workers' challenges would thus contribute to designing well-working support solutions (such as technological systems supporting coordinating care as suggested in *Chapter 7*). The current design framework (C2)

thereby provides a helpful basis, and could inform the study's design and guide the analysis of empirical data (see *Section 9.6*).

In addition to further detail and promoting the different micro-systems' ability to provide support, future research also needs to deepen knowledge regarding bio-systemic and macro-systemic factors. As discussed in *Section 9.7.1*, this research involved a key group inside the UMY group, namely UMY from Afghanistan, who face additional mental health risks due to their complicated asylum-seeking situation. Future work needs to include a broader diversity of participants with different backgrounds, roles, and education from different contexts and phases of the migration process in order to further develop the design framework and suggested design solutions. One insightful study could be to include refugees with different backgrounds, such as women and LGBTQ+ members of this population, from different countries and with different levels of digital literacy to explore variance in the social-ecological environment (see *Section 9.7.1*). The findings could deepen the understanding of how the framework (C2) would adapt to other groups of UMY and other contexts and the uniqueness of social-ecological factors in the context of male UMY from Afghanistan.

This research uncovered the dominating impact of the political regulations and policies on UMY's life and how this hinders resilience promotion. In addition, this thesis highlights the influence of macro-systemic factors related to cultural factors (e.g., the different cultural backgrounds of mentors and mentees and how they impact discussing mental health). Related to this, there is evidence that acculturation plays a crucial role in UMY's resilience development (Keles et al., 2018); thus, future research needs to investigate how cultural factors influence the interplay across and inside micro-systems in the design framework (C2) and how technological solutions, such as the suggested design examples (C3), could better support cultural factors and influences.

As discussed in *Section 9.5.1*, due to the infrastructural and political situation, the design of mental health resources is even more difficult in LMICs, where the socioeconomic situation probably shapes the constellation and content of the social-ecological design framework. Future research thus needs to investigate the barriers and complex social-ecological interplay in LMICs and how to design mental health resources for LMICs, which could help uncover connections between the socioeconomic situation and resilience and could further develop the design framework. In addition, the findings might provide insights into how a social-ecological design framework for resilience promotion (C2) could be adapted to become transferable to other contexts and research projects, which would extend contribution (C3).

As discussed in *Section 9.5.2*, other approaches such as community resilience and social capital have been applied in related research projects in the HCI and refugee context. Future research needs to investigate further how these and related approaches could be incorporated into an even more holistic framework. One focus could be understanding how to both support community resilience and individual social-ecological resilience. As these two concepts prioritize different needs (resilience of the community vs. resilience of the individual), it would be essential to investigate how the framework could manage and negotiate these tensions. This might be especially important for individuals who have a weaker position and more responsibility in their community (e.g., women), which might hinder them from following their individual needs and hamper their individual resilience. Another focus could be on how strategies of enhancing social capital and approaches to establish and leverage social ties could be incorporated into the social-ecological resilience framework.

In summary, future research needs to include participants with different backgrounds and from different social-ecological systems and further elaborate the social-ecological design framework (C2) for this context and related contexts, including LMICs. In addition, future research also

needs to extend the theoretical lenses to further elaborate the framework. Researchers, designers, and psychologists could thereby build upon the contributions of this thesis. The outcome of their research could inform the design framework and contribute to creating a more detailed version. Gained insights could also contribute to better understanding how the framework could be translated into other contexts.

### 10.2.2 Investigating Long-term Changes, Physical and Technical Factors, and Effectiveness

Future research is also needed to further develop the suggested design examples (C3) so that they enter the everyday life of UMY and their social ecology. Realizing this goal requires further exploring how each of the design examples would integrate and interplay with the social-ecological environment of UMY in the long term. In STUDY 3, UMY used some apps in their homes for a brief period (pathway A in Figure 9.2). In addition, the role of physical factors were only investigated with the focus on the micro-system *everyday living situation*. It would be important to investigate how technological interventions integrate into the everyday life of UMY and their social ecology and how they influence, shape, and change the social ecology, their inter-relationships, and practices accordingly. As part of future work, design examples – such as suggested systems to support the exchange between mentors and experts/peers or to support the exchange between mentee and mentor about the mentee's mental health – could be developed as technological probes and tested in a real context over an extended period. The focus could lay on uncovering physical factors and instantiating existing socio-technical systems theory for the different micro-, meso- and exo-systems. This could also help to uncover further socio-technical challenges and requirements. In addition, future work is needed to explore further how technology could manage and mitigate constraints of the social and physical environment to use the mental health apps (pathway A in Figure 9.2). Future research would need to inquire in-depth into UMY's preferences regarding data-tracking solutions and test how these solutions would function in a real context over a more extended period. These studies could also inform the design of the design framework (C2) by detailing the relations and how technological solutions ideally integrate into and influence the different social systems (micro-, meso-, and exo-systems).

This research showed that the design framework (C2) helps design and research mechanisms that make technological systems more resilient to sustain capability to provide support, navigate, and apply resources in the long term. While the research findings indicated the importance of chrono-systemic developments, this research project examined a relatively brief period of the migration process. To be able to develop sustainable and robust solutions, future research needs to deepen the understanding of how technology could manage and mitigate chrono-systemic changes. As discussed in *Section 9.4.3*, especially in this context of vulnerable populations, it is crucial to prevent the disappearance of support infrastructures due to unforeseen events. One unforeseen event that worsened the situation for UMY and refugee communities was the Covid-19 pandemic; for instance, in Austria, people with migration backgrounds were particularly negatively affected by the Covid-19 pandemic since they had to face many challenges that worsened their psycho-social problems (e.g., re-traumatizing situation, reduced social contacts, racism, and discrimination) (Kohlenberger, Weigl, Gaiswinkler, Buber-Ennser, & Rengs, 2021). At the same time, the Covid-19 pandemic and related measures further complicated receiving mental health support for this community (Disney et al., 2021). In addition, as social contacts were reduced (Kohlenberger et al., 2021), the Covid-19 pandemic led to changes in and decreased accessibility of the social ecology; thus, future research needs to explore how technological solutions could be designed to account for such unforeseen and drastic events.

Future research also needs to explore whether the technological solutions suggested as part of the design examples (C3) promote psychological resilience; thus, future research is needed to measure whether the mental health apps and delivered interventions would improve the resilience of UMY. One challenge here is that the established methods to evaluate the effectiveness of digital and non-digital interventions are designed to evaluate individual approaches. Interventions promoting social-ecological resilience are much more difficult to measure (cf. (Trzesniak, Libório, & Koller, 2012; Ungar, 2004)); thus, it would be beneficial to work with researchers in the field of psychology to investigate how these technological interventions promote resilience in UMY.

## 10.3 Final Reflections

In summary, the work presented in this thesis addressed a complex research problem that demands expertise in different research fields, mainly in the fields of mental health technologies, refugee and HCI, and resilience research. This work lays the groundwork for future work in these research areas. Researchers and designers could build on the three core contributions and thereby gain an overview of the opportunities and complex interplay in this context (which prevents researchers and designers from getting lost in its complexity). As there is little research on mental health technologies for vulnerable and marginalized contexts, this work not only lays the groundwork for this research problem but also for other marginalized contexts. In addition, this work contributes a new perspective on designing mental health technologies by proposing and exemplifying a shift from an individual to a social-ecological approach to researching and designing mental health technologies, which hopefully inspires many future research projects.

Overall, I hope that this work will inspire future work towards developing technology-enabled mental health support that contributes to creating an environment where everyone can thrive. Thereby, I hope that this work contributes a tiny part to preventing the increase of the treatment gap caused by the digitalization of mental health services. I wish to observe more research and design work conducted in this direction, which works towards design justice in the future.

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# Appendix: Glossary

## Overview of Terms

**Forced Displaced Person:** An individual forced to flee from their home or place of habitual residence (Inter-agency Network for Education in Emergencies (INEE), 2021; Portal, 2021).

**Vulnerable:** Able to be easily physically, emotionally, or mentally hurt, influenced, or attacked (Cambridge Dictionary, 2021).

**Country of destination:** In the migration context, a country that is the destination for a person or a group of persons, irrespective of whether they migrate regularly or irregularly (International Organization for Migration, 2021).

**Host country:** Country, in which UMY applied for asylum. For instance, the host country of the UMY participating in the studies of this thesis is Austria.

**High-income country:** The World Bank assigns the world's economies to four income groups. High-income countries are countries with a gross national income above 12,535 euros (state 2021). The classifications are updated each year on July 1 (Serajuddin & Hamadeh, 2020).

**Low- and middle-income country:** Low- and middle income country have a gross national income below and equal 12,535 euros (state 2021) (Serajuddin & Hamadeh, 2020).

**Marginalized:** "Relegated to a marginal position within a society or group" (Merriam Webster Dictionary, 2021).

**Marginalize:** "To relegate to an unimportant or powerless position within a society or group" (Merriam Webster Dictionary, 2021).

**Socioeconomic status:** "Social standing or class of an individual or group. It is often measured as a combination of education, income, and occupation" (APA, 2021).

**Reception facilities:** Reception facilities are responsible for caring and supervising UMY (Koppenberg, 2014).

**Social norms:** Informal rules that govern behavior in groups and societies (Bicchieri, Muldoon, & Sontuoso, 2018).

## Overview of Abbreviations

**UMY:** Unaccompanied migrant youth

**HIC:** High-income country

**LMIC:** Low- and middle-income country

# Appendix B: Data Collection Procedure and Informed Consent Sheets

## Data Collection and Protection

All data was held in accordance with the Data Management Plan by the Innovation Training Network (ITN) – Technology-Enabled Mental Health for Young People (TEAM) (funded by the European Union's Horizon 2020 program). As part of our research, I collected data in the form of personal information, photos, videos, drawings, or other artifacts. For example, I described behavior, video record workshops, photograph artifacts built during the workshops, audio record interviews, and collect drawings and prototypes made by the participants.

Most raw data was digitized and stored electronically on the project server. Access to the raw data was restricted to the members of the project, and appropriate measures are taken to protect the data on the server and the backup (encryption). I asked participants as part of seeking their consent whether they are comfortable with us collecting data in this form. I also made clear that participants can always ask for us to stop recording or delete any previous recording without providing any reason. In the project, the raw data was analyzed and processed as part of the research. I provided participants with a range of options regarding the potential use of this processed data. The levels of use were:

1. Data could be used in scientific publications if fully anonymized (all personal data removed).
2. Video and pictures could be used in scientific publications unaltered if no other personal information is provided.
3. Data coul be used for any publication (e.g., web page, newspapers) after seeking consent from the legal guard for each individual case.

## Informed Consent Sheets of STUDY 1

### Informed Consent Sheets of STUDY 1 – Professional Support Workers

# Technology Enabled Mental Health for Young People

## Informationsblatt für Betreuer*innen

**Projektmitarbeiter*in:**

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**Projektleitung:**

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**Technology Enabled Mental Health for Young People.**

European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie Action grant number 722561

*Der Schutz der Jugendlichen hat oberste Priorität. Die Forschung und alles andere sind diesem untergeordnet.*

Worum geht es in diesem Forschungsprojekt?

Im Rahmen des EU-Projekts "Technology Enabled Mental Health for Young People" (TEAM), möchten wir Technologie entwickeln, die das psychische Wohlbefinden von Jugendliche verbessern und ihre soziale und emotionale Fähigkeiten stärken. Obwohl es dafür zahlreiche technologiebasierte Anwendungen gibt, richten sich diese vorrangig an Kinder oder Erwachsene. Angebote für Jugendliche gibt es nur wenige. Gerade unbegleitete minderjährige Flüchtlinge könnten von Technologien zur Verbesserung des psychisches Wohlbefindens profitieren.

Wer finanziert dieses Forschungsprojekt?

Das Forschungsprojekt TEAM wird finanziert durch das *Horizon 2020 research and innovation programme* der EU, unter Marie Skłodowska-Curie grant agreement No. 722561.

TEAM (Technology Enabled Mental Health for Young People) has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 722561

Ist die Teilnahme mit Kosten verbunden?
Die Teilnahme an dem Projekt ist freiwillig und kostenlos. Alle Kosten, die durch die Zusammenarbeit verursacht werden, wie z.B. Transportkosten, werden von dem Projekt getragen.

Kann die Zusammenarbeit beendet werden?
Die Zusammenarbeit kann jederzeit und ohne Angabe von Gründen von allen Beteiligten beendet werden.

Wie läuft die Zusammenarbeit ab?
Sie entscheiden, wie intensiv Sie mit uns zusammenarbeiten möchten. Wir möchten Sie und Ihre Einblicke in das Leben der Jugendlichen besser kennenlernen. Dafür reicht es auch, wenn wir uns nur einmal treffen. Wenn Sie jedoch mehr Interesse an dem Projekt haben, freuen wir uns, Sie öfter zu treffen. Im Anschluss der ersten Einzelgespräche würden wir gerne Sie und Ihre Kolleg*innen zu einer Gruppendiskussion einladen. Dadurch können wir unser Verständnis für Ihre Erfahrungen vertiefen.
Sie und Ihre Schützlinge sind auch herzlich willkommen, beim späteren Gestaltungsprozess mitzuwirken. Dafür würden dann nächstes Jahr im Sommer Workshops stattfinden, in denen Konzepte für die zukünftigen Technologien entwickelt werden.

Was passiert bei den Treffen?
Wir würden Sie gerne in einer entspannten Atmosphäre treffen und über Ihre Erfahrungen sprechen. Wo und wie lange wir uns treffen, entscheiden Sie. Ein Treffen kann jederzeit unter- oder abgebrochen werden, falls es die Situation erfordert.

Werden die Treffen aufgezeichnet?
Um unsere Treffen zu dokumentieren und für unsere Forschung zu analysieren, können von allen Treffen Tonaufnahmen gemacht und gegebenenfalls Gegenstände fotografiert werden. Außerdem werden wir während der Treffen Notizen machen. Alle schriftlichen Aufzeichnungen, Audioaufnahmen und Fotos verwenden wir ausschließlich für unser Forschungsprojekt (z.B. für Veröffentlichungen wie unserer Doktorarbeiten). Wir werden jedem mitteilen, wenn wir unsere Zusammenarbeit aufzeichnen, zum Beispiel via Audio oder Video.

Wie werden die Informationen verwendet?
Die Daten werden von den Projektbeteiligten, in erster Linie von Franziska Tachtler und Toni Michel, analysiert. Das Ziel ist ein tieferes Verständnis für die alltägliche Lebenswelt der Jugendlichen zu gewinnen. Die gewonnenen Erkenntnisse sind Grundlage für die Entscheidungen in der nächsten Phase des Projekts, in der neue Technologien in Workshops entwickelt werden. Die anonymisierten Daten werden möglicherweise auch in Designworkshops vorgelegt, um die Teilnehmer*innen zu neuen Ideen zu inspirieren.

Werden Aufzeichnungen veröffentlicht?
Ein wichtiger Teil unserer Forschungstätigkeit ist es, unsere Ergebnisse zu veröffentlichen und bei Konferenzen und öffentlichen Veranstaltungen zu präsentieren. Außerdem werden wir am Ende des

TEAM (Technology Enabled Mental Health for Young People) has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 722561

Projekts in unserer Doktorarbeit auf gesammelte Daten Bezug nehmen. Aufzeichnungen und gesammelte Daten werden für die Veröffentlichung vollständig **anonymisiert**.

Wie anonymisieren wir Daten und schützen Ihre Privatsphäre und die der Jugendlichen?
Wir werden Daten so bearbeiten, dass es nicht möglich sein wird, auf Ihre Identität oder auf die Identität von Jugendlichen zu schließen. Das heißt, dass auch Dinge, die Sie uns sagen, so anonymisiert werden, dass die Jugendlichen, von denen Sie sprechen, nicht identifiziert werden können. Namen und weitere Informationen, die eindeutig auf eine Person schließen lassen, werden nicht veröffentlicht. Bereits bei der internen Auswertung verwenden wir nur erfundene Namen. Fotos und Videos, auf denen Sie oder die Jugendlichen erkennbar sind, werden entfernt.
Im Zweifelsfall, zum Beispiel bei Kontextinformationen, die auf eine Person schließen lassen, werden die Daten nur intern verwendet. Vor Veröffentlichung erhalten Sie Einblick in die Informationen, die wir berichten und haben die Möglichkeit Inhalte ausschließen zu lassen.
Wir halten uns an die folgenden Datenschutzvorlagen: EU-Datenschutzgrundverordnung, Datenschutzgesetz 2000, BGBl. I Nr. 165/1999 bis 24.Mai 2018 und Datenschutz-Anpassungsgesetz 2018, BGBl. I Nr. 120/2017 von 25.Mai 2018

Wie werden die Aufzeichnungen gespeichert? Wie wird die Information archiviert?
Ihre Privatsphäre ist uns sehr wichtig. Die Aufzeichnungen werden auf einem verschlüsselten Datenträgern gespeichert, die in unserem Büro in der TU Wien gelagert werden und auf die nur Projektmitarbeiter Zugriff haben. Selbstverständlich können auch Sie jederzeit das betreffende Material einsehen, wenn Sie möchten. Die Datenträger werden nach aktuellem Stand der Technik verschlüsselt. Nach Projektende werden die Aufzeichnungen in verschlüsseltem Zustand in der TU Wien archiviert. 10 Jahre nach Projektende werden die Aufzeichnungen unwiederbringlich gelöscht.

*Bei Fragen rufen Sie uns an oder schreiben Sie uns eine E-Mail. Die Kontaktdaten finden Sie auf der ersten Seite. Wenn Probleme auftreten oder Sie eine Beschwerde haben, können Sie sich gerne direkt an die Projektleitung, Prof. Geraldine Fitzpatrick <geraldine.fitzpatrick@tuwien.ac.at> wenden.*

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# Technology Enabled Mental Health for Young People

## Einwilligungserklärung

**Projektmitarbeiter:**

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Toni Michel

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**Projektleitung:**

Prof. Geraldine Fitzpatrick

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**Technology Enabled Mental Health for Young People.**

European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie Action grant number 722561

Ich, , bestätige Folgendes:

| | |
|---|---|
| Ich habe das Informationsblatt gelesen und hatte genügend Zeit dazu Fragen zu stellen. | |
| Ich weiß, worum es in der Forschung geht. | |
| Ich weiß, welche Daten erfasst werden und was mit diesen geschieht. | |
| Ich weiß, dass Treffen unter Umständen per Audio und/oder Video aufgezeichnet werden. | |
| Ich weiß, dass ich jederzeit die Möglichkeit habe, in die erfassten Daten Einblick zu bekommen. | |

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| | |
|---|---|
| Ich weiß, wie die Zusammenarbeit abläuft und dass ich sie jederzeit ohne Angaben von Gründen beenden kann. | |
| Mir ist bewusst, dass falls Nebenerkenntnisse aufkommen, nach denen nicht gefragt wurden, aber systemisch relevant sind, die Wissenschaftler*in Franziska Tachtler und Toni Michel mit ihrer Betreuerin Prof. Geraldine Fitzpatrick und ihrer Ethikberatungskommission über weitere Schritte diskutieren werden. | |
| Zusätzliche Kommentare | |

**ERKLÄRUNG**

Hiermit stimme ich der Verwendung der über mich erhobenen Daten und die Verwendungen der Rohdaten mit dem Schutz meiner Anonymität zu.

Unterschrift Teilnehmer*in _____

Unterschrift Wissenschaftler*in _____

Datum:

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**Informed Consent Sheets of STUDY 1 – Volunteer Support Workers**

# Technology Enabled Mental Health for Young People

## Informationsblatt für Pat*innen

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Worum geht es in diesem Forschungsprojekt?

Im Rahmen des EU-Projekts "Technology Enabled Mental Health for Young People" (TEAM), möchten wir Technologie entwickeln, die das Wohlbefinden von Jugendliche verbessern und ihre soziale und emotionale Fähigkeiten stärken. Obwohl es dafür zahlreiche technologiebasierte Anwendungen gibt, richten sich diese vorrangig an Kinder oder Erwachsene. Angebote für Jugendliche gibt es nur wenige. Gerade unbegleitete minderjährige Flüchtlinge könnten von Technologien zur Verbesserung des Wohlbefindens profitieren.

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# Technology Enabled Mental Health for Young People

## Einverständniserklärung


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| Zusätzliche Kommentare | |

**ERKLÄRUNG**

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Unterschrift Teilnehmer*in _____

Unterschrift des Wissenschaftler*in _____

Datum:

TEAM (Technology Enabled Mental Health for Young People) has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 722561

**Informed Consent Sheets of STUDY 1 – UMY**

# Technology Enabled Mental Health for Young People

## Informationsblatt


**Projektmitarbeiter:**

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*Der Schutz Ihrer Privatsphäre hat oberste Priorität. Die Forschung und alles andere sind diesem untergeordnet.*

Worum geht es in diesem Forschungsprojekt?

Im Rahmen des EU-Projekts "Technology Enabled Mental Health for Young People" (TEAM), möchten wir Technologien entwickeln, die Jugendliche im Alltag unterstützen und stärken. Die Technologien sollen Jugendlichen Spaß machen und in Ihre Lebenswelt passen. Deshalb brauchen wir Ihre Unterstützung.

Wie läuft die Zusammenarbeit ab?

Durch Gespräche möchten wir Sie, Ihren Alltag und was Ihnen Spaß macht, kennenlernen. Im Sommer und Herbst 2018 gibt es die Möglichkeit an Workshops, in denen Konzepte für zukünftige Technologien entwickeln werden, teilzunehmen. Sie entscheiden, wie intensiv Sie mit uns zusammenarbeiten möchten.

Kann die Zusammenarbeit beendet werden?

Ja, Sie können die Zusammenarbeit jederzeit und ohne Angabe von Gründen beenden.

Ist die Teilnahme mit Kosten verbunden?

Nein, die Teilnahme an dem Projekt ist freiwillig und kostenlos. Alle Kosten, die durch die Zusammenarbeit verursacht werden, wie z.B. Transportkosten, werden von dem Projekt getragen.


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Werden die Treffen aufgezeichnet?
Falls Sie damit einverstanden sind, würden wir während der Treffen Tonaufnahmen machen und gegebenenfalls Gegenstände fotografieren. Alle schriftlichen Aufzeichnungen, Audioaufnahmen und Fotos verwenden wir ausschließlich für unser Forschungsprojekt (z.B. für Veröffentlichungen wie unserer Doktorarbeiten). Wir werden jedem mitteilen, wenn wir unsere Zusammenarbeit aufzeichnen, zum Beispiel via Audio.

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Die Daten werden von den Projektbeteiligten, in erster Linie von Franziska Tachtler und Toni Michel, analysiert. Die Ergebnisse sind Grundlage für Entscheidungen, wie zukünftige Technologien gestaltet werden sollten, und werden in anonymisierter Form möglicherweise auch in Designworkshops zur Inspiration vorgelegt.

Werden Aufzeichnungen veröffentlicht?
Ein wichtiger Teil unserer Forschungstätigkeit ist es, unsere Ergebnisse zu veröffentlichen und bei Konferenzen und öffentlichen Veranstaltungen zu präsentieren. Außerdem werden wir am Ende des Projekts in unserer Doktorarbeit auf gesammelte Daten Bezug nehmen. Aufzeichnungen und gesammelte Daten werden für die Veröffentlichung vollständig **anonymisiert**.

Wie anonymisieren wir Daten und schützen Ihre Privatsphäre und die der Jugendlichen?
Wir werden Daten so bearbeiten, dass es nicht möglich sein wird, auf Ihre Identität oder auf die Identität von Leuten in Ihrem Netzwerk zu schließen. Das heißt, dass auch Dinge, die Sie uns sagen, so anonymisiert werden, dass Leute, von denen Sie sprechen, nicht identifiziert werden können. Namen und weitere Informationen, die eindeutig auf eine Person schließen lassen, werden nicht veröffentlicht. Bereits bei der internen Auswertung verwenden wir nur erfundene Namen. Fotos und Videos, auf denen Sie oder andere Personen erkennbar sind, werden entfernt.
Vor Veröffentlichung erhalten Sie Einblick in die Informationen, die wir berichten und haben die Möglichkeit Inhalte ausschließen zu lassen.

Wie werden die Aufzeichnungen gespeichert? Wie wird die Information archiviert?
Ihre Privatsphäre ist uns sehr wichtig. Die Aufzeichnungen werden auf einem verschlüsselten Datenträgern gespeichert, die in unserem Büro in der TU Wien gelagert werden und auf die nur Projektmitarbeiter Zugriff haben. Selbstverständlich können auch Sie jederzeit das betreffende Material einsehen, wenn Sie möchten.
Die Datenträger werden nach aktuellem Stand der Technik verschlüsselt. Nach Projektende werden die Aufzeichnungen in verschlüsseltem Zustand in der TU Wien archiviert. 10 Jahre nach Projektende werden die Aufzeichnungen unwiederbringlich gelöscht.

*Bei Fragen rufen Sie uns an oder schreiben Sie uns eine E-Mail.*
*Wenn Probleme auftreten oder Sie eine Beschwerde haben, können Sie sich gerne direkt an die Projektleitung, Prof. Geraldine Fitzpatrick <geraldine.fitzpatrick@tuwien.ac.at> wenden.*

TEAM (Technology Enabled Mental Health for Young People) has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 722561

# Technology Enabled Mental Health for Young People

## Einwilligungserklärung

**Projektmitarbeiter:**
Franziska Tachtler
Mail: franziska.tachtler@tuwien.ac.at
Festnetz: +43 1 58801 18738

Toni Michel
Mail: toni.michel@tuwien.ac.at

**Projektleitung:**
Prof. Geraldine Fitzpatrick

**Thema:**
Technology Enabled Mental Health for Young People.

**Fördergeber:**
European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie Action grant number 722561

**Institution:**
Technische Universität Wien
Institut für Gestaltungs- und Wirkungsforschung
Human Computer Interaction Group
Argentinierstrasse 8, Wien
T: +43-1-58801-18703
F: +43-1-58801-918703
http://igw.tuwien.ac.at/hci/

Ich bestätige Folgendes:

| | |
|---|---|
| Ich habe das Informationsblatt gelesen und hatte genügend Zeit dazu Fragen zu stellen. | |
| Ich weiß, worum es in der Forschung geht. | |
| Ich weiß, welche Daten erfasst werden und was mit diesen geschieht. | |
| Ich weiß, dass Treffen unter Umständen per Audio aufgezeichnet werden. | |
| Ich weiß, dass ich jederzeit die Möglichkeit habe, in die erfassten Daten Einblick zu bekommen. | |
| Ich weiß, wie die Zusammenarbeit abläuft und dass ich sie jederzeit ohne Angaben von Gründen beenden kann. | |

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| | |
|---|---|
| Mir ist bewusst, dass falls Nebenerkenntnisse aufkommen, nach denen nicht gefragt wurden, aber systemisch relevant sind, die Wissenschaftler Franziska Tachtler und Toni Michel mit ihrer Betreuerin Prof. Geraldine Fitzpatrick und ihrerer Ethikberatungskommission über weitere Schritte diskutieren werden. | |
| Zusätzliche Kommentare | |

**ERKLÄRUNG**

Hiermit stimme ich der Verwendung der über mich erhobenen Daten und die Verwendungen der Rohdaten mit dem Schutz meiner Anonymität zu.

Unterschrift des Teilnehmers _____

Unterschrift des TU Mitarbeiters _____

Datum:

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## Informed Consent Sheets of STUDY 2

# Technology Enabled Mental Health for Young People

## Informationsblatt


**Projektmitarbeiter:**

Franziska Tachtler

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Toni Michel

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**Projektleitung:**

Prof. Geraldine Fitzpatrick

geraldine.fitzpatrick@tuwien.ac.at

**Datenschutzbeauftragte der TU Wien:**

Mag.iur. Christina Thirsfeld

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**Institution:**

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**Technology Enabled Mental Health for Young People.**

European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie Action grant number 722561


Worum geht es in diesem Forschungsprojekt?

Im Rahmen des EU-Projekts "Technology Enabled Mental Health for Young People" (TEAM), möchten wir Technologie entwickeln, die das **psychische Wohlbefinden von Jugendlichen**, die ohne ihre Eltern nach Österreich geflüchtet sind, **verbessern**. Da Paten für die Jugendlichen eine wichtige Vertrauensperson und Hilfe im Alltag sind, untersuchen wir, wie Technologien Paten in ihrer Rolle als emotionale Hilfe unterstützen können.

Wie läuft die Zusammenarbeit ab?

Sie entscheiden, wie intensiv und lange Sie mit uns zusammenarbeiten möchten. Bei einem **Workshop** würden wir gerne Ihre Erfahrungen und Herausforderungen als Patin und Pate und Ihre Tipps an andere Paten kennenlernen. Wir hoffen, dass wir ermöglichen können, dass andere Paten von Ihren Erfahrungen lernen und das Gelernte in ihrer Patenschaft umsetzen können. Deshalb möchten wir einen **Ratgeber für Paten** gestalten. Dafür und für die Entwicklung von weiteren


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Technologien, die die Paten in ihrer Rolle als emotionale Hilfe unterstützen, werden wir noch mehr Workshops und Studien halten, an denen Sie gerne teilnehmen können.

Kann die Zusammenarbeit beendet werden?
Die Zusammenarbeit kann **jederzeit** und **ohne Angabe von Gründen** von allen Beteiligten beendet werden. Ein Treffen kann jederzeit unter- oder abgebrochen werden, falls es die Situation erfordert.

Ist die Teilnahme mit Kosten verbunden?
Nein, die Teilnahme an dem Projekt ist **freiwillig und kostenlos**.

Wer finanziert dieses Forschungsprojekt?
Das Forschungsprojekt TEAM wird finanziert durch das *Horizon 2020 research and innovation programme* der EU, unter Marie Skłodowska-Curie grant agreement No. 722561.

Werden die Treffen aufgezeichnet?
Falls Sie damit einverstanden sind, würden wir während der Treffen Tonaufnahmen machen und gegebenenfalls Gegenstände fotografieren. Alle schriftlichen Aufzeichnungen, **Video-, Audioaufnahme**n und **Fotos** verwenden wir **ausschließlich für unser Forschungsprojekt** (z.B. für Veröffentlichungen wie unserer Doktorarbeiten). Wir werden jedem mitteilen, wenn wir unsere Zusammenarbeit aufzeichnen, zum Beispiel via Audio.

Wie werden die Informationen verwendet?
Die Daten werden von den Projektbeteiligten, in erster Linie von Franziska Tachtler und Toni Michel, analysiert. Die Ergebnisse sind Grundlage für Entscheidungen, wie zukünftige Technologien gestaltet werden sollte. Ergebnisse, die bei einem Workshop gemacht wurden, werden in **anonymisierter Form** auch in anderen Workshops gezeigt, damit diese weiterentwickelt werden können.

Werden Aufzeichnungen veröffentlicht?
Ein wichtiger Teil unserer Forschungstätigkeit ist es, unsere Ergebnisse zu veröffentlichen und bei Konferenzen und öffentlichen Veranstaltungen zu präsentieren. Außerdem werden wir am Ende des Projekts in unserer Doktorarbeit auf gesammelte Daten Bezug nehmen. Aufzeichnungen und gesammelte Daten werden für die Veröffentlichung vollständig **anonymisiert**.

Wie anonymisieren wir Daten und schützen Ihre Privatsphäre und die der Jugendlichen?
Wir werden Daten so bearbeiten, dass es nicht möglich sein wird, auf Ihre Identität oder auf die Identität von Jugendlichen zu schließen. Das heißt, dass auch Dinge, die Sie uns sagen, so anonymisiert werden, dass die Jugendlichen, von denen Sie sprechen, nicht identifiziert werden können. Namen und weitere Informationen, die eindeutig auf eine Person schließen lassen, werden nicht veröffentlicht. Bereits bei der internen Auswertung verwenden wir nur erfundene Namen. Fotos und Videos, auf denen Sie oder die Jugendlichen erkennbar sind, werden entfernt. Im Zweifelsfall, zum Beispiel bei Kontextinformationen, die auf eine Person schließen lassen, werden die

Daten nur intern verwendet. Vor Veröffentlichung erhalten Sie Einblick in die Informationen, die wir berichten und haben die Möglichkeit Inhalte ausschließen zu lassen.

Wie werden die Aufzeichnungen gespeichert? Wie wird die Information archiviert?

Die Privatsphäre der Jugendlichen und Ihre Privatsphäre ist uns sehr wichtig. Die Aufzeichnungen werden auf einem **verschlüsselten Datenträgern** gespeichert, die in unserem Büro in der TU Wien gelagert werden und auf die nur Projektmitarbeiter Zugriff haben. Selbstverständlich können auch Sie jederzeit das betreffende Material einsehen, wenn Sie möchten. Die Datenträger werden nach aktuellem Stand der Technik verschlüsselt. Nach Projektende werden die Aufzeichnungen in verschlüsseltem Zustand in der TU Wien archiviert. **10 Jahre nach Projektende** werden die Aufzeichnungen **unwiederbringlich gelöscht**.

Bei Fragen können Sie sich auch an die **Datenschutzbeauftragte** der TU Wien, Mag.iur. Christina Thirsfeld (christina.thirsfeld@tuwien.ac.at), wenden.

*Bei Fragen rufen Sie uns an oder schreiben Sie uns eine E-Mail.*
*Wenn Probleme auftreten oder Sie eine Beschwerde haben, können Sie sich gerne direkt an die Projektleitung, Prof. Geraldine Fitzpatrick <geraldine.fitzpatrick@tuwien.ac.at> wenden.*

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# Technology Enabled Mental Health for Young People

## Einwilligungserklärung


**Projektmitarbeiter:**

Franziska Tachtler

Mail: franziska.tachtler@tuwien.ac.at

Festnetz: +43 1 58801 18738

Toni Michel

Mail: toni.michel@tuwien.ac.at

**Projektleitung:**

Prof. Geraldine Fitzpatrick

geraldine.fitzpatrick@tuwien.ac.at

**Datenschutzbeauftragte der TU Wien:**

Mag.iur. Christina Thirsfeld

christina.thirsfeld@tuwien.ac.at

**Institution:**

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**Technology Enabled Mental Health for Young People.**

European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie Action grant number 722561


Ich, , bestätige Folgendes:

| | |
|---|---|
| Ich habe das Informationsblatt gelesen und hatte genügend Zeit dazu Fragen zu stellen. | |
| Ich weiß, worum es in der Forschung geht. | |
| Ich weiß, welche Daten erfasst werden und was mit diesen geschieht. | |
| Ich bin einverstanden, dass Treffen unter Umständen per Audio aufgezeichnet werden. | |
| Ich bin einverstanden, dass Treffen unter Umständen per Video aufgezeichnet werden. | |


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| | |
|---|---|
| Ich weiß, dass ich jederzeit die Möglichkeit habe, in die erfassten Daten Einblick zu bekommen. | |
| Ich weiß, wie die Zusammenarbeit abläuft und dass ich sie jederzeit ohne Angaben von Gründen beenden kann. | |
| Mir ist bewusst, dass falls Nebenerkenntnisse aufkommen, nach denen nicht gefragt wurden, aber systemisch relevant sind (z.Bsp. ein Missbrauchsfall), die Wissenschaftler Franziska Tachtler und Toni Michel mit ihrer Betreuerin Prof. Geraldine Fitzpatrick und ihrer Ethikberatungskommission über weitere Schritte diskutieren werden. | |
| Zusätzliche Kommentare | |

**ERKLÄRUNG**

Hiermit stimme ich der Verwendung der über mich erhobenen Daten und die Verwendungen der Rohdaten mit dem Schutz meiner Anonymität zu.

Unterschrift des Teilnehmers _____

Unterschrift des Wissenschaftlers _____

Datum:

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# Informed Consent Sheets of STUDY 3

## Informed Consent Sheet UMY – "Easy To Read"-German

Hallo,
ich hoffe unsere Treffen sind für dich spannend und du lernst dabei, wie man digitale Produkte wie Apps entwickelt. Ich, Franziska, arbeite an der Technischen Universität in Wien. In meinem Projekt geht es um digitale Produkte für Jugendliche, die ohne Eltern nach Österreich geflüchtet sind. Die digitalen Produkte wie Apps sollen gegen schlechten Schlaf und Stress helfen. Damit diese gut helfen, brauche ich Hilfe von Experten. Bei meinem Projekt bist du ein wichtiger Experte.

Ich möchte viel von unseren Treffen lernen und danach anderen erzählen, was für digitale Produkte du dir wünscht. Bei unseren Treffen werden wir viel reden. Leider kann ich mir nicht alles merken. Deshalb möchte ich gerne von unseren Treffen Audioaufnahmen machen.

Nach den Treffen möchte ich über mein Erlebnis mit dir schreiben. Ich schreibe darüber, damit noch viel mehr Menschen von uns lernen können. Zum Beispiel möchten auch andere Forscher digitale Produkte für Jugendliche und junge Erwachsene, die flüchten mussten, machen. Für sie sind die Erlebnisse von unseren Treffen sehr hilfreich. Wenn ich über unsere Treffen schreibe, schreibe ich keine Namen. So weiß niemand, dass ich über dich schreibe.

Zu den Treffen nehme ich Fotokameras mit. Mit den Kameras kannst du selber Fotos machen. Durch die Fotos können andere Forscher besser verstehen, was wir bei den Treffen gemacht haben.

Alle Informationen werden 10 Jahre nach Projektende gelöscht. Du kannst jederzeit sagen, wenn du nicht mehr bei dem Projekt mitmachen möchtest. Du kannst jederzeit sagen, dass deine Daten gelöscht werden sollen.

Bitte kreuze hier an, was du mir bei unseren Treffen und danach erlaubst.

| | |
|---|---|
| | Es ist okay, dass Audioaufnahmen von den Treffen gemacht werden.<br>Nur Projektbeteiligte wie Franziska und Toni hören sich die Aufnahmen an.<br>Die Audioaufnahmen werden sicher aufbewahrt. Das heißt, die Audioaufnahmen sind auf einer Festplatte, die in Franziskas Büro eingesperrt ist. |
| | Es ist okay, dass Franziska eine weitere Person fragt, sich die Aufnahmen anzuhören und aufzuschreiben, was bei den Treffen geredet wird. Dadurch muss Franziska nicht alleine alles aufschreiben, was bei den Treffen gesprochen wird. Diese Person darf niemanden von unseren Gesprächen erzählen. |
| | Es ist okay, dass Franziska über unsere Treffen schreibt und andere Leute das lesen können. Franziska verspricht, keine Namen zu nennen. |
| | Es ist okay, dass Fotos von den Treffen gemacht werden. Franziska verspricht, dass Fotos mit Gesichtern gelöscht werden. So wird durch die Fotos niemand erkannt. |

Unterschreibe hier, wenn du bei meiner Forschung helfen möchtest.
Dein Name: Unterschrift:

Hier unterschreibe ich, Franziska Tachtler, und verspreche dir alles, was ich geschrieben habe:
Unterschrift:

Datum:

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**Wer sind wir?**



**Franziska Tachtler**
Seit Mai 2017 lebe ich in Wien. Ich bin in München geboren. Ich habe auch in England und Schweden gelebt. In England habe ich bei einer Organisation für Kinder und Familien gearbeitet. In Schweden habe ich studiert und für eine Organisation für arbeitslose junge Erwachsene gearbeitet. In meiner Freizeit male und reise ich gerne.

Mail: franziska.tachtler@tuwien.ac.at

Festnetz: +43 1 58801 18738

Wenn Probleme auftreten oder du eine Beschwerde hast, kannst du auch unserer Chefin, Prof. Geraldine Fitzpatrick, schreiben:
geraldine.fitzpatrick@tuwien.ac.at

Bei Fragen wegen den Audioaufnahmen, Fotos und Daten über dich, kannst du auch der Datenschutzbeauftragten der TU Wien, Mag.iur. Christina Thirsfeld, schreiben:
christina.thirsfeld@tuwien.ac.at
Sag ihr, dass du wegen meinem Projekt schreibst. Denn an der TU Wien gibt es sehr viele Projekte.

Vielen Dank, dass du mir bei meiner Arbeit hilfst!
Liebe Grüße
Franziska

**Technische Universität Wien**
Human Computer Interaction Group
Argentinierstrasse 8, Wien
http://igw.tuwien.ac.at/hci/

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**Informed Consent Sheet UMY – Dari**

سلام،

امیدوارم جلسات ما برای شما جالب باشند و در این اثنا یاد بگیرید که چطور محصولات دیجیتالی را مانند اپلیکیشن ها تولید کنید. من، فرانزیسکا، در پوهنتون تخنیکی در وین کار می کنم. پروژه من درباره محصولات دیجیتالی برای جوانانی است که بدون والدین خود به اتریش فرار کرده اند. محصولات دیجیتالی مانند اپلیکیشن ها به بی خوابی و استرس کمک خواهند کرد. برای اینکه این محصولات خوب کار کنند، من به کمک متخصصان نیاز دارم. شما یک متخصص مهم برای پروژه های من هستید.

من می خواهم چیزهای زیادی را از جلساتمان یاد بگیرم و متعاقباً به دیگران بگویم، که کدام محصولات دیجیتالی را می خواهید. ما در مدت جلساتمان زیاد صحبت خواهیم کرد. متاسفانه، نمی توانم همه صحبت ها را حفظ کنم. به همین خاطر، علاقه مند هستم جلساتمان را بالای کاست ویدیویی ضبط کنم.

پس از جلسات، می خواهم درباره تجربه خود با شما مطلبی بنویسم. این را می نویسم تا افراد زیادی بتوانند از ما یاد بگیرند. برای مثال، سایر محققان نیز می خواهند برای جوانان و نوجوانانی که مجبور به فرار بوده اند، محصولات دیجیتالی تولید کنند. تجربیات جلسات ما برای آنها بسیار مفید است. در زمان نوشتن مطلب درباره جلساتمان، من به هیچ کدام از اسامی اشاره نخواهم کرد. بدین ترتیب هیچکس نخواهد فهمید که من راجع به شما مطلب می نویسم.

من کامره هایی را با خود به جلسات خواهم آورد. شما می توانید خودتان با کامره ها عکس بگیرید. بر اساس تصاویر، سایر محققان می توانند به خوبی متوجه شوند که ما در طول جلسات خود چه کار کرده ایم.

تمام معلومات 10 سال بعد از ختم پروژه پاک خواهند شد. اگر دیگر نمی خواهید در پروژه اشتراک کنید، می توانید در هر زمانی به ما اطلاع دهید. شما می توانید در هر زمانی درخواست کنید تا دیتاهای شما پاک شوند.

لطفاً در زیر مشخص کنید که در طول و بعد از جلساتمان به من اجازه چه کارهایی را می دهید.

| | |
|---|---|
| | می توانید از جلسات ما فلم های صوتی بگیرید.<br>فقط افراد ذیدخل در پروژه مانند فرانزیسکا و تونی می توانند فلم ها را استماع نمایند.<br>فلم های صوتی به طور ایمن ذخیره می شوند. به عبارت دیگر فلم های صوتی در یک هارد دیسک قرار می گیرند، که آن را در دفتر فرانزیسکا قفل کرده اند. |
| | فرانزیسکا می تواند از شخص دیگری بخواهد تا ویدیوها را استماع نماید و آنچه را که در طول جلسات مورد بحث قرار گرفته است، نوت کند. بنابراین، فرانزیسکا تنها کسی نیست که تمام آنچه را که در طول جلسات مورد بحث قرار گرفته است، نوت می کند. |
| | فرانزیسکا می تواند درباره جلسات مطلب بنویسد و سایر افراد می توانند آن را بخوانند. فرانزیسکا قول می دهد به هیچ اسمی اشاره نکند. |
| | می توانند در طول جلسات عکسبرداری کنند. فرانزیسکا قول می دهد که عکس چهره ها حذف شوند. در نتیجه، هیچکس در عکس ها شناسایی نمی شود. |

اگر می خواهید به من در این تحقیق کمک کنید، لطفاً اینجا را امضا نمایید.
نام شما: امضا:

من، فرانزیسکا تاچلر، اینجا را امضا می کنم و به شما قول می دهم هر آنچه را که نوشته ام انجام خواهم داد:
امضا:

تاریخ:

**ما کی هستیم؟**



**فرانزیسکا تاچلر (Franziska Tachtler)**
من از ماه می 2017 در وین زندگی می کنم. من در مونیخ متولد شده ام. در انگلستان و سوئد نیز زندگی کرده ام. در انگلستان، برای یک موسسه مربوط به اطفال و خانواده ها کار می کردم. در سوئد تحصیل کرده و برای یک موسسه مربوط به جوانان بیکار کار می کردم. در اوقات فراغت، دوست دارم نقاشی و سفر کنم.

ایمیل: franziska.tachtler@tuwien.ac.at

تلیفون ثابت: 18738 58801 1 43+

در صورت وجود هر قسم مشکل یا اگر شکایتی دارید، همچنین می توانید برای رئیس ما، پروفیسور جرالدین فیتزپاتریک (Geraldine Fitzpatrick) ایمیل ارسال کنید:
geraldine.fitzpatrick@tuwien.ac.at

برای طرح سوالاتی درباره فلم ها، عکس ها و دیتا ها درباره شما، همچنین می توانید برای مسئول حفاظت از دیتا TU (پوهنتون تخنیکی) وین، کریستینا تیرسفلد (Christina Thirsfeld) دارنده دیپلم حقوق، ایمیل ارسال کنید:
christina.thirsfeld@tuwien.ac.at
به او بگویید که درباره پروژه من برای او ایمیل ارسال می کنید. زیرا پروژه های زیادی در پوهنتون تخنیکی وین وجود دارند.

از اینکه در کارم به من کمک می کنید، از شما بسیار تشکر می نمایم!
با احترام،
فرانزیسکا

TEAM (صحت روان جوانان با فناوری) از پروگرام تحقیق و نوآوری Horizon 2020 اتحادیه اروپا طبق قرارداد کمک مالی Marie Skłodowska-Curie به نمبر 722561 بودجه دریافت کرده است

# Appendix C: Recruitment Material – STUDIES 1-3

## Recruitment Material of STUDY 1

### Exemplary Invitation Letter to Organizations

Im Rahmen eines EU Forschungsprojekts zur Verbesserung der mentalen Gesundheit von Jugendlichen möchten wir Sie um Ihre Unterstützung bitten, und würden uns freuen, wenn wir dies in den kommenden Wochen bei einem Treffen diskutieren könnten.

Seit Anfang Mai sind mein Kollege Toni Michel (toni.michel@tuwien.ac.at) und ich an dem Institut für Gestaltungs- und Wirkungsforschung, Human Computer Interaction Group der TU Wien als Doktoratsstudenten angestellt und forschen im Rahmen des EU-Projects "Technology Enabled Mental Health" (siehe http://www.team-itn.eu/). Unsere Projekte werden betreut durch Prof. Geraldine Fitzpatrick (geraldine.fitzpatrick@tuwien.ac.at).

Beide Projekte beschäftigen sich mit der Entwicklung von Technologien zur Stärkung der psychischen Gesundheit von Jugendlichen, insbesondere von unbegleiteten minderjährigen Flüchtlingen. Da die Ergebnisse der Projekte für den alltäglichen Kontext der Jugendlichen gestaltet sein sollen, ist ein wichtiger Teil unserer Forschung, die Jugendlichen mitreden und wirken zu lassen und mit Ihnen zu gestalten, statt für sie. Dafür brauchen wir Ihre Unterstützung.

Aktuell planen wir einen Game Design Workshop an der TU Wien, um den Kontext der Jugendlichen besser kennenzulernen. über vier Veranstaltungen hinweg würden wir die Jugendlichen dabei unterstützen ein Spiel für ihre Peergroup zu entwickeln. Dabei lernen die Teilnehmer spannende Hintergründe der Spieleentwicklung kennen. Außerdem können die Jugendlichen unter anderem bei einem Workshop an unseren Physical Computing Lab der TU Wien ihre eigenen Konzepte in Prototypen umsetzen.

Bei einem Treffen würden wir gerne Folgendes mit Ihnen diskutieren: Kennen Sie jemanden, der uns mit der übersetzung und den Gruppenaktivitäten helfen könnte und dabei die Methoden der Technologieentwicklung besser kennenlernt? Welche Möglichkeiten hätten Sie, um uns bei der Suche nach Teilnehmern an dem Game Design Workshop zu unterstützen?

Wann hätten Sie am besten Zeit dies mit uns in den kommenden Wochen zu besprechen? In der Woche vom 29.08.-01.09. und 11.09.-15.09. sind wir zeitlich flexibel.

Vielen Dank im Voraus für Ihre Hilfe. Mit freundlichen Grüßen

### Exemplary Presentation to Recruit Organizations










# Technology Enabled Mental Health for Young People

Toni Michel
Franziska Tachtler

Funded by the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 722561.



# Technology Enabled Mental Health for Young People

**Toni Michel**

Entwickeln eines barrierefreien technologischen Toolkits
zur Unterstützung von präventiven Maßnahmen

betreut durch Prof. Geraldine Fitzpatrick (TU Wien) und Prof. Stephen Brewster (University of Glasgow)

**Franziska Tachtler**

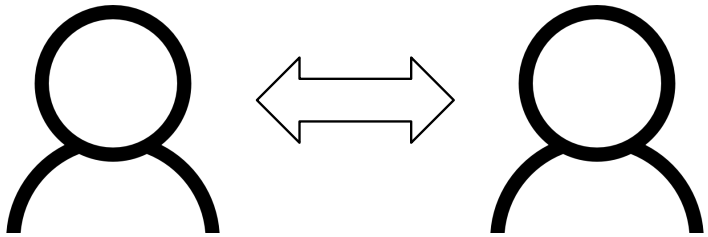
Gestaltung von Technologien zur Förderung der Resilienz
mit unbegleiteten Flüchtlingen

betreut durch Prof. Geraldine Fitzpatrick (TU Wien) und Dr. Türkan Akkaya-Kalayci (MedUni Wien)




Funded by the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 722561.

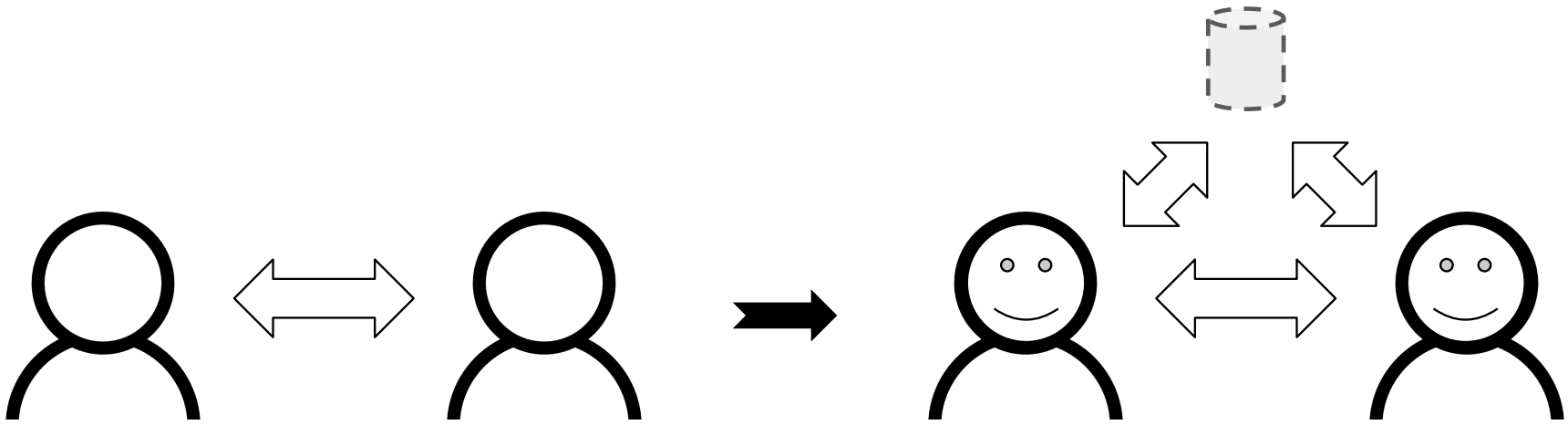
# Technologie als Vermittler



(bisher)

Funded by the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 722561.

# Technologie als Vermittler



(bisher) (bald)

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# Zusammenarbeit

**Ziele von [redacted]**

- Verantwortung:
  Selbst- und Fremdverantwortung der Jugendlichen fördern
- Selbständigkeit:
  die Burschen in ihrer Eigenständigkeit und Persönlichkeitsbildung zu unterstützen
- Integration:
  die Jugendlichen beim Leben und Zurechtfinden in einer für sie fremden Kultur zu begleiten

**Was wir unterstützen möchten**
*(Schutzfaktoren in der Resilienz)*

- Gelassenheit
- Selbständigkeit
- Geselligkeit
- Wirkungsvolle Bewältigungsstrategien
- Kommunikationsfähigkeit
- Zusammenhalt, Struktur, emotionale Unterstützung,
- gute Bindungsfähigkeit mit
  - Gleichaltrigen,
  - Erwachsenen,
  - Betreuern
- positive Schulerfahrung

Funded by the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 722561.

Assess Prevent Treat TEAM
Technology Enabled Mental Health

TU WIEN TECHNISCHE UNIVERSITÄT WIEN Vienna | Austria

HUMAN COMPUTER INTERACTION GROUP

# Zusammenarbeit

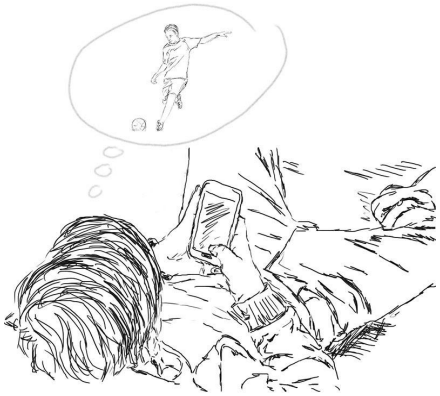
1. [redacted] als Partner für das Projekt gewinnen
2. Interviews und Workshop mit Experten
    a. Alltag der Jugendlichen
    b. Existierende Psychologische Betreuung
3. Jugendliche am Designprozess beteiligen
    a. 1. Phase: Kennenlernen
    b. Langfristig: Jugendlichen in der Gestaltung von Technologien, die deren mentale Gesundheit stärken und unterstützen, eine Stimme geben, mit Hilfe von Brainstorming und Prototyping Workshops

Funded by the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 722561.



**Invitation Letter to UMY**

Hallo,
wir, Franziska Tachtler und Toni Michel, sind zwei Mitarbeiter an der TU Wien. Wir möchten Apps für Jugendliche und junge Erwachsene entwickeln. Die Apps würden Sie im Alltag unterstützen.



Dafür brauchen wir Ihre Hilfe. Wir möchten, dass Sie die App mitgestalten, damit die App für Sie passt.





Bei einem gemütlichen Treffen würden wir beide Sie gerne kennenlernen. Wir würden gerne darüber sprechen, was Ihnen in Wien wichtig ist.

Ort und Zeit für das Treffen entscheiden Sie. Das Treffen wäre 45 Minuten lang. Wir treffen Sie gerne alleine oder zusammen mit einer Vertrauensperson. Alles was Sie uns sagen, wird vertraulich behandelt. Alle Informationen werden anonymisiert.

Bei Fragen und Interesse rufen Sie uns an oder schreiben Sie uns eine E-Mail:

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Festnetz: +43 1 58801 18738

Toni Michel
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Prof. Geraldine Fitzpatrick
Projektleitung
geraldine.fitzpatrick@tuwien.ac.at

Institut für Gestaltungs-und
Wirkungsforschung
TU Wien

Liebe Grüße
Franziska Tachtler und Toni Michel

# Recruitment Material of STUDY 2

## Invitation Letter to Invite Mentors to Co-design Workshops

**Liebe Patinnen, liebe Paten,**

Paten sind für unbegleitete minderjährige Flüchtlinge eine wichtige, emotionale Hilfe im Alltag. Jedoch gibt es Situationen, die die Patenschaft erschweren und manchmal auch dazu führen, dass die Patenschaft endet.
Um neue Paten zu unterstützen, möchte ich in einen **Ratgeber** gestalten, der Schwierigkeiten und Tipps illustriert und damit **für neue Paten** leicht zugänglich werden.

**Für die Umsetzung dieses Ratgebers bräuchte ich Ihre Hilfe.**

**Wie?**
In einem **Workshop** werden wir Eure unterschiedliche Schwierigkeiten, wie erstes Treffen, Missverständnisse und Umgang mit Erwartungen, sammeln. Zu den jeweiligen Herausforderungen als Pate würde ich gerne möglichst viele Details erfahren, wie Sie diese erlebt haben und was Sie anderen Paten raten diese zu meistern. Dadurch kann ich die Erfahrung in einem Ratgeber so zusammentragen und vermitteln, dass neue Paten sich in diese Situationen versetzen und davon lernen können.

Den Hauptteil der **Gestaltung** setze ich nach dem Workshop um. **Alle Kosten** wie Druckkosten und die Organisation **übernehme ich**.
Außerdem übernehme ich pro Unterstützer für das Hanbuch eine **Patenschaft beim Lebenslauf** der Asylkoordination.

**Wann?**
Der genaue Zeitpunkt hängt davon ab, wann und wie lange Sie und andere Teilnehmer Zeit haben. Gerne würde ich mich in den kommenden Wochen (10.8.-24.8.) mit einer kleinen Gruppe von Paten und Programmkorrdinatioren für 3 Stunden treffen, um erste Inhalte zu sammeln.
Falls dies zu kurzfristig ist, versuche ich zu einem späteren Zeitpunkt einen Termin zu finden.
Natürlich würde ich mich freuen, wenn ich mich bei Fragen oder um in weiteren Workshops das Handbuch mit Inhalten zu erweitern, zusätzlich an Sie wenden könnte.

**Das Ergebnis:**
**Gedruckte** und ein **digitaler Ratgeber**, die an neue Paten weitergegeben werden können

**Wer bin ich?**
Ich bin **Doktorandin an der TU Wien** und forsche, wie Technologien genutzt werden können, um die psychische Gesundheit von Jugendlichen und junge Erwachsene, die ohne Ihre Eltern nach Wien kamen, zu stärken. Deshalb möchte ich die Inhalte des Workshops anonymsiert für meine Forschungsarbeit analysieren. Dies würde mir sehr helfen, mögliche Richtungen für den Einsatz von Technologien zu erforschen.

Bitte melden Sie bei mir bei Interesse und Fragen, damit wir alles weitere besprechen können.
**Vielen Dank im Voraus für Ihre Unterstützung!**

**Franziska Tachtler**
HCI Group, TU Wien
franziska.tachtler@tuwien.ac.at
+43 1 58801 18738

This project is a part of the **TEAM-ITN EU Horizon 2020 research and innovation programme** funded under the Marie Sklodowska-Curie grant agreement no. 722561.

# Recruitment Material of STUDY 3

## Invitation Letter to UMY

# Workshop:
# Gestaltung einer App gegen Stress & für besseren Schlaf



**Zielgruppe:** Jugendliche und junge Erwachsene mit Fluchthintergrund (16-25 Jahre alt)
keine technischen Vorkenntnisse notwendig

## Was?

- Entwickle für andere Jugendliche, die auch ohne Eltern nach Österreich gekommen sind, eine App, die hilft mit Sorgen und Stress umzugehen und besser zu schlafen.
- Erfahre, wie Profis bei Google etc. neue Technologien und Apps gestalten.
- Mit Deinen Antworten und Ideen hilfst du uns, dass wir in unserem Forschungsprojekt TEAM bessere Technologien entwickeln können.

**Wann & wo?** 16.2., 2.3. und 9.3. von 13:00 Uhr bis 16:30 Uhr in der Argentinierstr. 8, 2. Stock

## Inhalt der Workshops:

### 1. Treffen, 16. Februar von 13:00 bis 16:30 Uhr:

- Wir lernen uns kennen.
- Wir zeigen Dir Apps, die Du zu Hause testen kannst.
- Wir zeigen Dir Techniken zur App-Entwicklung wie Storyboarding.



*Storyboard*

### 2. Treffen, 2. März von 13:00 bis 16:30 Uhr:

- Wir reden über Deine Testergebnisse.
- Du zeichnest Deine ersten Storyboards.



*Papier-Prototype*

### 3. Treffen, 9. März von 13:00 bis 16:30 Uhr:

- Wir zeigen Dir, wie man Papier-Prototypen baut.
- Du baust einen Prototypen.



*Little Bits*

Es gibt **Snacks und Getränke**.

Am Ende des Workshops erhält jeder eine **Teilnahmebestätigung**.



## Interesse?

Ruf uns an oder schreib eine E-Mail oder Telegram-Nachricht.

## Kontakt:


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Festnetz: +43 1 58801 18738

**Toni Michel**
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**Prof. Geraldine Fitzpatrick**
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TEAM (Technology Enabled Mental Health for Young People) has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 722561

# Appendix D: Detailed Agenda and Outline of STUDIES 1-3

## STUDY 1: Semi-structured Interviews

### Background Information - Professionals and Volunteer Support Workers

I aimed to interview experts with different roles to gain an overview of UMY's situation and insights from many different perspectives.

I interviewed different types of professional support workers who worked in various roles in different positions. The primary professions were social workers, teachers, and mental health experts. Four social workers worked in reception facilities for UMY below 18 organized by three different NGOs in Vienna in different roles. Two social workers led a team at one of the reception facilities and supervised the social work by their team. One social worker worked in a follow-up care initiative for UMY who turned 18 (SW1). One social worker (SW4) and one teacher worked at an educational program. Two teachers worked at educational programs developed explicitly for UMY (T1, T2). Besides teaching German lessons, they took on roles with a higher responsibility, namely being project leader (T1) and liaison teacher (T2). One teacher (T3) facilitated voluntary photography workshops called PhotoVoice to empower female UMY. The mental health experts provided mental health support in different roles/forms, namely by offering anti-aggression workshops for refugees (P1), facilitating so-called Wellbeing Groups in an advocacy group for migrant youths (P2), and facilitating wellbeing groups and individual treatment at a clinic (P3). The work by P1 and P2 took place as part of NGOs.

I also recruited interview partners through volunteer organizations that organized and supervised mentoring programs. I interviewed three professionals who worked for two different organizations that coordinated and supervised different mentoring relationships (C1, C2, C3). One coordinator (C3) was also a mentor, and one social worker (SW5) wrote a Master's thesis on mentoring relationships.

### Interview Guides

#### Professional Support Workers – German Version

- Ziel 1: Kennenlernen der Beziehung zu den Jugendlichen

  - Erzählen Sie uns doch erst einmal etwas über Ihre Arbeit (An was arbeiten Sie aktuell?)
  - Was ist ihr Aufgabengebiet bei der Arbeit mit den Jugendlichen? (Wie sieht ihre Arbeit mit den Jugendlichen genau aus?)
  - Können Sie mir etwas über die Beziehung zu den Jugendlichen, die Sie betreuen, erzählen?
  - Können Sie mir von einem Tag letzte Woche berichten, an dem Sie die Jugendlichen, die Sie betreuen, getroffen haben?
  - War das ein typischer Arbeitstag? Warum/ Warum nicht?

- Ziel 2: Wissen über den Alltag der Jugendlichen vertiefen
  - Wie viel bekommen Sie von dem Alltag der Jugendlichen mit? Was ist das z.B.?
  - Gibt es Aktivitäten, die Sie zusammen machen? Können Sie mir mehr darüber erzählen
  - Gibt es Aktivitäten, die den Jugendlichen wichtig sind? Welche sind das?
  - Bevor Sie bei hier gearbeitet haben, haben Sie da mit Jugendlichen ohne Migrationshintergrund gearbeitet? Wie unterscheidet sich die jetzige Arbeit davon?
  - Merken Sie den kulturellen Unterschied?
  - Was ist der einfachste Teil Ihrer Arbeit?
  - Was ist der schwerste?

- Ziel 3: Unterstützung für die Jugendlichen: Strategien und soziale Strukturen
  - Können Sie mir von Problemen der Jugendlichen erzählen?
  - Wie versuchen Sie Ihren Jugendlichen zu helfen, wenn sie Schwierigkeiten haben? Was ist besonders aufbauend für die Jugendlichen, die Sie betreuen?
  - Kam letzte Woche einer Ihrer Jugendlichen mit Problemen zu Ihnen? Was haben Sie ihm geraten?
  - Was hilft aus Ihrer Erfahrung in solchen oder ähnlichen Situationen? Was hilft nicht?
  - Vermitteln Sie den Jugendlichen Strategien zur Bewältigung von Problemen? Welche sind das?
  - Wie versuchen Sie Ihre Jugendlichen zur Verwirklichung ihrerer Träume zu motivieren und ihnen dabei zu helfen, an sich und ihre Fähigkeiten zu glauben?
  - Wie sieht das soziale Netzwerk der Jugendlichen aus? Wer ist für die Jugendlichen besonders wichtig? Wer unterstützt die Jugendlichen außer Ihnen?
  - Welche Technologien, also z.Bsp. Handy, Apps, und Computerspiele, kennen Sie,die Ihre Jugendlichen nutzen?

- Ziel 4: Selbstfürsorge
  - Wie gehen Sie mit Stress um, den die Arbeit mit traumatisierten Jugendlichen, auslösen kann?
  - Gibt es etwas, wobei Sie mehr Unterstützung bräuchten?

  - Wenn Sie etwas ändern könnten, dass Ihren Job weniger anstrengend macht, was wäre das?

- Verabschiedung
  - Wäre es für Sie okay, wenn wir Sie bei weiteren Fragen kontaktieren und Ihnen unsere Zusammenfassung von unserem Gespräch schicken?
  - Gibt es jemanden in Ihrem Arbeitsumfeld, mit denen wir Ihrer Meinung nach unbedingt reden müssten? Also z.B. Kollegen..
  - Dürfen wir Sie zu einem gemeinsamen Gespräch mit anderen in Ihrem Bereich einladen

### Professional Support Workers – English Version (Shorten)

- Aim 1: Get to know their relationship to the UMY
  - Tell us about your work?
  - What are your tasks? What are there occasions you are getting into contact with the youths?
  - Can you tell us more about your relationship with the youth.
  - Can you tell us about a day last week/ yesterday together with the youth?
  - How did that day differ from other days? What was normal?
- Aim 2: Expanding knowledge about the everyday life of the UMY
  - How much do you experience from their everyday life? What for instance?
  - Are there any activities that you do together? Can you tell me more about...
  - What are other activities which the UMY care for?
  - Before your work here, have you worked with youth without migrant background? How does the work with the UMY differ?
  - Do you experience any cultural differences?
  - What do you find the easiest parts of your 'job'?
  - And what is the hardest?
- Aim 3: Support strategies and social structures
  - Can you tell us something about the problems the young people who you are working with, seek help for/have?
  - What do you recommend them to do in these situations? What did work? What does not work?
  - Did any of the youths come to you with their problems last week? What did you recommend to them?
  - What helps from your experience in such and similar situations? What does not help?
  - Do you teach the youths any strategies to cope with their problems? Which ones?
  - What is a good way to make the youth you are working with stick to their dreams? Why?

  - What is the social network of the young people like? Who in the social network has which roles and supports the young person how?
  - Which technology is being used to support the communication between a young person and his/her social network?

- Aim 4: Personal strategies for self-care
  - How do you handle the stress of working with partially traumatized youth?
  - Is there anything you feel you would like more support with?
  - If you could pick one thing that could change to make your job just a little less stressful, what could they be?

- Ending: Would it be okay if we follow up on our questions if any questions occur when we are going through our notes?

### Professional support workers – German Version Adapted for Anti-aggression Workshops for UMY

- Ziel 1: Kennenlernen der Expert*in
  - Können Sie mir erstmal was zu Ihnen erzählen
  - Können Sie mir etwas über diese Organisation erzählen

- Ziel 2: Kennenlernen der Workshops
  - Können Sie mir etwas zum Hintergrund des Workshops erzählen?
  - Was sind die Hintergedanken zu dem Workshop? Wie sind Sie darauf gekommen?

- Ziel 3: Umsetzung
  - Wie versuchen Sie die Inhalte zu vermitteln?
  - Wenn ich so einen Workshop gestalten würde, was würden Sie mir raten, was ich bei der Umsetzung beachten soll?
  - Wie versuchen Sie die Sprachschwierigkeiten zu überwinden?
  - Was haben Sie daraus gelernt?
  - Was würden Sie in Zukunft anders machen? Haben Sie andere, ähnliche Workshops gestaltet?
  - Wenn ja, was war bei diesem Workshop ähnlich und was war anders?
  - Wie sehen Sie den langsichtigen Effekt?

- Ziel 4: Einblick in Alltag der UMY
  - Welchen Einblick haben Sie in das Leben der Jugendlichenn?

### Professional Support Workers – German Version Adapted for PhotoVoice Workshops

- Ziel 1: Kennenlernen der Expert*in
  - Können Sie mir erstmal was zu Ihnen erzählen
  - Können Sie mir etwas über diese Organisation erzählen
- Ziel 2: Kennenlernen der Workshops
  - Können Sie mir etwas zum Hintergrund des Workshops erzählen?
  - Was sind die Hintergedanken zu dem Workshop? Wie sind Sie darauf gekommen?
- Ziel 3: Umsetzung
  - Wie versuchen Sie die Inhalte zu vermitteln?
  - Wenn ich so einen Workshop gestalten würde, was würden Sie mir raten, was ich bei der Umsetzung beachten soll?
  - Wie versuchen Sie die Sprachschwierigkeiten zu überwinden? Wie sehen Sie die Kamera als Mittel um Sprachbarrieren zu überwinden?
  - Was waren Schwierigkeiten bei der Umsetzung des Workshops? Was haben Sie daraus gelernt?
  - Was würden Sie in Zukunft anders machen? Haben Sie andere, ähnliche Workshops gestaltet?
  - Wenn ja, was war bei diesem Workshop ähnlich und was war anders?
  - Wie konnten die Teilnehmerinnen von dem Kurs profitieren? Kennen Sie Kurse oder Aktivitäten mit ähnlicher Wirkung? Was waren die Unterschiede?
- Ziel 4: Einblick in Alltag der UMY
  - Welchen Einblick haben Sie in das Leben der Jugendlichen?
  - Was können Sie mir zu den entstandenen Fotos sagen?

### Volunteer Support Workers – German Version

- Ziel 1: Kennenlernen der Beziehung zu den Jugendlichen: Aktivitäten und Alltag
  - Erzählen Sie uns doch erst einmal etwas über Ihre Patenschaft (Wie wurden Sie Patin?)
  - Können Sie mir etwas über Ihre Beziehung zu Ihrem Patenkind erzählen? (Wie und wie häufig treffen Sie sich?)
  - Können Sie mir von Ihrem letzten Patentreffen erzählen? War dies ein typisches Treffen? Warum? Warum nicht?
  - Können Sie mir von Ihrem ersten Treffen erzählen?
  - Wie viel bekommen Sie von dem Alltag der Jugendlichen mit? Was ist das zum Beispiel?

  - Gibt es Aktivitäten, die Sie zusammen machen? Können Sie mir mehr darüber erzählen?
  - Gibt es Aktivitäten, die den Jugendlichen wichtig sind? Welche sind das?
- Ziel 2: Wissen über die Beziehung vertiefen: Herausforderungen
  - Wie hat sich die Beziehung zu ihrem Patenkind entwickelt?
  - Was ist der einfachste Teil der Patenschaft?
  - Was ist der schwerste? Was sind andauernde/aktuelle Herausforderungen?
  - Merken Sie den kulturellen Unterschied? Wenn ja, wie?
  - Mit welchen Problemen kommt Ihr Patenkind zu Ihnen?
  - Wie versuchen Sie Ihr Patenkind aufzubauen?
  - Was ist besonders aufbauend?
- Ziel 3: Soziales Netzwerk und Technologien
  - Welche Technologien, also z.Bsp. Handy, Apps, und Computerspiele, kennen Sie, die Ihr Patenkind nutzt? Welche Technologie unterstützt die Kommunikation mit Ihrem Patenkind?
  - Wie sieht das soziale Netzwerk der Jugendlichen aus? Wer ist für die Jugendlichen besonders wichtig?
- Ziel 4: Selbstfürsorge und Unterstützung für Paten
  - Wie gehen Sie mit Stress um, den die Arbeit mit traumatisierten Jugendlichen, auslösen kann?
  - Gibt es etwas, wobei Sie mehr Unterstützung bräuchten?
  - Gab es Situationen, wo Sie sich mehr Unterstützung gewünscht hätten?
  - Wenn Sie etwas ändern könnten, dass die Patenschaft verbessert/ erleichtert, was wäre das?
- Abschluss: Wäre es für Sie okay, wenn wir Sie bei weiteren Fragen kontaktieren und Ihnen unsere Zusammenfassung von unserem Gespräch schicken? Gibt es jemanden, mit denen wir Ihrer Meinung nach unbedingt reden müssten?

### Volunteer Support Workers – English Version (Shorten)

- Aim 1: Get to know their relationship to the UMY
  - Tell us about your mentorship (How did you become a mentor?)
  - Can you tell us about your relationship with your mentee? (When and how regularly do you meet?)
  - Can you tell us about your last meeting with your mentee? How was it typical/ usual? How did it differ?
  - Tell us about the first time you met your mentee
  - How much do you experience from their everyday life? What?

  - Which activities do you do together?
  - What are other activities that your mentee cares for?
- Aim 2: Challenges
  - How did your relationship with your mentee develop?
  - What do you find easiest of being a mentor?
  - What is the hardest? what (if any) are ongoing or current challenges?
  - Do you experience cultural differences? If yes, how?
  - For which problems did your mentee ask you for help?
  - How did you try to help her/him/them?
  - What works well?
- Aim 3: Social networking and technology
  - Which technology does your mentee use? Which technology is being used to support the communication between you and your mentee?
  - What is the social network of your mentee like?
- Aim 4: Personal strategies for self-care and support structures for mentors
  - How do you personally handle the stress care for a partially traumatized youth?
  - Is there anything where you need more support?
  - Were there situations you needed support or wished to get more support?
  - What, if anything, would you change to make being a mentor easier?
- Ending: Would it be okay if we follow up on our questions if any questions occur when we are going through our notes?

### Volunteer Support Workers Together with Mentee – German Version

- Ziel 1: Kennenlernen der Patenschaft
  - Erzählen Sie uns doch erst einmal etwas über Eure Patenschaft. Wer ihr seid?
  - Wie sehen eure Treffen aus? Was habt ihr beim letzten Treffen gemacht? War das ein typisches Treffen?
  - Wie oft seht ihr euch?
  - Wie oft habt ihr euch am Anfang gesehen?
- Ziel 2: Wissen über die Patenschaft vertiefen
  - Gibt es bei euch auch Konflikte? Gab es mal schwierige Phasen?
  - In den Patenschaften wird oft beschrieben, dass sowohl Pate als auch Patenkind Erwartungen an die Beziehung haben. Wie war das bei euch?
  - Kennst du (Patenkind?) auch andere Leute, die Patenschaften hatten?
- Ziel 3: Kennenlernen des Alltags und Schwierigkeiten der Jugendlichen

  - Falls Pateinkind nichts erzählt: Was machst du für Aktivitäten? Wie? Und wann?
  - Darf ich fragen, was hier (in Wien) so Schwierigkeiten für dich (Patenkind) sind? Was ist so schwierig?
- Ziel 4: Technologien
  - über welche Kanäle kommuniziert ihr? Wie habt ihr Kontakt?
  - Was für Technologie verwendet ihr im Alltag?

#### UMY – German Version

- Ziel 1: Kennenlernen des Alltags
  - Was heute gemacht?
  - Was hast du am Wochenende gemacht?
  - Was hast du letzte Woche gemacht?
- Ziel 2: Soziales Netzwerk
  - Hast du Bekannte in Wien? Wie hast du die kennengelernt? Wie lange kennt ihr euch?
  - Falls Patin: Wie hast du deine Pat*in kennengelernt? Was macht ihr so zusammen?
  - Wie war es am Anfang in Wien?
- Ziel 3: Technologien
  - Was für Technologie verwendest du?
  - Wie kennst du dich mit Technik aus?

# STUDY 2: Co-Design Workshops with Mentors

## Workshop Activities

### Workshop Day 1

The first workshop focused on problems and advice for new mentors/ mentors' younger self. As part of the workshop, the mentors grouped the problems and advice into categories. The topics for the different advice were:

- taking your time and being patient;
- rhythm and regularity;
- dealing with expectations, setting boundaries, making offers and liability;
- having respect culture, values, and own matters, being open and getting involved;
- seeking help and contact to other supporters early.

### Workshop Day 2

The workshop day 2 built upon the topics for the advice. The workshop started with discussing the topics and mapping them onto a timeline. Through mapping the advice onto a timeline, the participants identify factors that influence where they would place the advice.

**Timeline** On workshop day 2, through mapping the advice onto a timeline, the participants identify factors that decide when the advice is most suited.

1. The phase of the relationship: specific challenges become essential, especially at the beginning of the mentor relationship, as part of getting to know each other.
2. External challenges: the challenges of the mentor relationship change depending on external factors, such as the asylum process, finding a job, and finding accommodation. Thus, the timing when the mentors need certain advice depends on these external factors.
3. The mentees' mental state: For instance, "seeking help" becomes especially important during the whole relationship in cases of challenges, e.g., when the mentors observe psychological problems, such as restlessness.
4. Throughout the relationship: other advice, such as having regular mentoring meetings

**Deepen practices** To better deepen the practices, which are more important in relation to mental health, one activity focused on collecting more specific advice to newcomer mentors in relation to the topic "setting boundaries" and "talking about worries and emotions". The topic "setting boundaries" was chosen, as this is important for the mentor's mental health, and the topic "talking about worries and emotions", as the first workshop showed that this is a key challenge in the mentor relationship but also a key way how experienced mentors become able to support their mentees' mental health.

Regarding "setting boundaries", the mentors included in the advice for mentors details when this practice is needed, namely when the mentor realizes that the mentee does not feel well in a situation and feel helpless and overstrained. They shared that they felt like this when their mentee had to cope with too big psychological problems, which the participants compared with a black hole. Their key advice here was to get supervision or reflect with others. Key advice for "talking about worries and emotions" were addressing own observation; giving advice, e.g., how to admit sadness and fear; supporting different activities, e.g., making music, movements; encouraging them.

**Technology-driven gratitude interventions** In the end, participants developed ideas for technology-driven gratitude interventions as an exemplar of an intervention that can help promote resilience.

One idea was a mobile phone game with many graphics where the user does not have to think a lot as the mentees get easily exhausted when feeling down. The task would be that the mentee writes a letter to themselves. When the mentees did the task, they would receive a reward. At the workshops, the mentors emphasized the importance of creating space for negative thoughts, e.g., where the mentees can put all their negative thoughts in a visual box and shoot on them, as the risk for mentors is high that they become the garbage bin of their mentee where their mentee unload all their problems.

The other idea was to create an interactive tool that connects with the things they like, e.g., her mentee loves dogs. In addition, the mentors imagined that the the mentee has to feed the

interactive tool with a positive thing, so that the interactive tool functions as a virtual, neutral conversation partner.

### In-between Workshop Day 1 and 2

After the workshop, I gathered the different outcomes of the first two workshops and organized them into one guidebook. The outcomes were: categories of advice, collection of advice, exemplary situations, timeline, detailed description of some of the advice, timeline of challenges, and advice/support needs. The collection of advice was complemented with quotes from the workshop discussions and exemplary scenarios presented by the mentors to illustrate some advice (e.g., when they would have needed a piece of advice or when they experienced a "learning curve" in their mentoring relationship).

### Workshop Day 3

In the third workshop, the mentors edited and discussed the draft of the guidebook. The mentors worked in groups in which they annotated the draft for the guide for newcomer mentors. Then they discussed their results with the whole group.

## Detailed Agenda of Each Workshop Day (In German)

### Workshop Day 1

| Thema | Inhalt | Material |
|---|---|---|
| Einverständniserklärung | | |
| Vorstellsungsrunde | Name? Wie lange Patin? | |
| Zurück zum Anfang | Wenn Sie an Ihre Anfänge zurückdenken, was hätten Sie gerne Ihrem zukünftigen ich gesagt? Was würden Sie für Tipps geben? | Post-It Notes: eine Farbe für die Herausforderung, eine für den Tipp |
| Präsentation der Themenbereiche | Ich stelle Themenbereich der Interviews vor. Welche Themen fehlen? Was würden Sie anderen Pat*innen in ähnlichen Situation für Tipps geben? | Post-It Notes: eine Farbe für die Herausforderung, eine für den Tipp |
| Gestaltung Ratgeber | Wie können die Themen für den Ratgeber zusammen gefasst werden? | Mind Map der Post-It Notes und Post-It-Notes für überbegriffe |
| Psychische Gesundheit | Kam das Thema psychische Gesundheit in eurer Patenschaft vor? Wie geht ihr damit um? Wie versuchen Sie die psychische Gesundheit zu unterstützen? | Post-It Notes |

### Workshop Day 2

- **Aktivität 1:** Vorstellungsrunde
  - Seit wann sind Sie Patin? Wie würden Sie Ihre Patenschaft beschreiben? Wohnt das Patinkind bei Ihnen?

- Können Sie mehr über Ihr Patenkind erzählen? Alter des Patinkind?
- Was war das letztes Treffen mit Ihrem Patinkind?

- **Aktivität 2:** Zeitachse der Patenschaft
  1. (20 Min) Wenn Sie zurückblicken auf Ihre Patenschaft, was für Phasen gab es da? Was waren so schwierige Momente? Füllen Sie (individuell) die Timeline der Patenschaft für Ihre Patenschaft auf. Verwenden Sie Schlagwörter und Symbole.
  2. (10 Min)Präsentation: Gibt es ähnlichkeiten?
  3. (20 Min) Auf den Zetteln stehen Fähigkeiten, Ressourcen und Strategien, die im letzten Workshop aufkamen. Wann werden diese Ressourcen, Fähigkeiten und Strategien wichtig in der Patenschaft? Und bleiben diese wichtig?

- **Aktivität 3:** Vertiefung bestimmter Themenbereiche (Abgrenzen, Angebote machen, Erwartungen)
  - Welche Situationen gab es, wo Sie dieses Thema relevant wurden? Was haben Sie aus in der Situation gelernt?
  - Denken Sie an verschiedenen Situationen, versuchen Sie diese einer neuer Patin mit Schlagwörtern, den Cut-Outs oder Zeichnung zu erklären. Die Zeichnung kann auch nur aus Strichmännchen bestehen.

- **Aktivität 4:** Über Sorgen Reden
  - Wie reden Sie aktuell über Sorgen
  - Wie reden Sie aktuell über Sorgen? Was waren schwierige und was waren einfache Momente?

- **Aktivität 5:** Tool um positive Dinge zusammeln
  - Sammeln Sie ihre 6 Ideen mit Hilfe der Bögen
  - Stellen Sie die beste Idee in der Runde vor

### Workshop Day 3

- **Begrüßung**
  - Gegenseitiges Vorstellen
  - Präsentation des Ablaufs

- **1. Teil: Diskussion über der gedruckten Version (50 Minuten):**
  Basierend auf den Diskussionen und Inhalten der zwei Workshops über einen Ratgeber für Paten habe ich einen Entwurf gestaltet, wie der Ratgeber aussehen könnte. Ich würde nun vorschlagen, dass ihr in drei Gruppen von 2-3 Personen euch bestimmte Seiten anschaut und dabei die Perspektive von einer neuen Patin einnehmt. Bei der Aufteilung der Gruppen beachten, dass die Paten bei denen der Patensohn wohnt und nicht wohnt gemischt sind.
  - **1. Aufgabe:** Gruppen arbeiten an bestimmten Kapiteln
    * Gruppe 1: Herausforderungen + Ratschlag “Nichts muss alles kann” – Angebote machen und Grenzen setzen

    - Gruppe 2: Herausforderungen + “Mach es, du wirst es sehen” - Respekt, Offenheit, Geduld und darauf einlassen
    - Gruppe 3: Herausforderungen + “Ich kann nicht alles richten” – Früh Hilfe suchen und sich vernetzen
  - **2. Aufgabe:** Alle Gruppen arbeiten jeweils am Kapitel “Ich habe ja dich” – Der Umgang mit psychischen Problemen
  - **Gruppenpräsentation:** Jede Gruppe präsentiert für 5 Minuten ihre Produkte, Feedback und Inhalte. Die andere Gruppe gibt 5 Minuten Feedback

- **Abschlussdiskussion:**
  Erweiterung mit digitalen Prototypen, Workshop Jugendliche: digitale, greifbare Hilfsmittel

# STUDY 3: Co-Design Workshops with UMY

## Workshop Day 1: "Creating your own company and getting to know your competitors' products"

| Time | Activity | Details | Material | All/Team/ Individually |
|---|---|---|---|---|
| 13:05 | Welcome: Getting to know each other | Create a name tag with your name, symbols for things you like, languages you speak, and your age | Pens, pencils, paper | All |
| 13:15 | Introduction of the topic of workshop and design process | | | All |
| 13:35 | Explaining informed consent sheets | Explain informed consent sheets, explain that participants can just take one of the available cameras and take pictures: You decide what is important to document | | All |
| 14:00 | Create your own company – Group discussion | Collect activities and things that help you to sleep and feel better: What apps are you using to feel better and sleep better? How did you find them? | Mind map | All |
| 14:30 | Break | | | |
| 14:45 | Create your own company – Teamwork | Start working in pairs, find company name and slogan | Mind map and sketching | Team |
| 15:30 | Getting to know your competitor | Take a look at all apps in detail, try to understand what they are doing, collect good and bad things, mark them with the help of post-it notes | Apps installed on phones and tablets | Team |
| 16:15 | Choose one app and install it | | | Team and individually |
| at home | Try out an app at home, and make notes in your notebook | | Apps installed private phones | Individually |

Table 1: Overview of activities on workshop day 1

## Workshop Day 2: "Identify the weaknesses of your competitor's product"

| Time | Activity | Details | Material | All/Team/ Individually |
|---|---|---|---|---|
| 13:05 | Recap | Explain to each other what the different apps are doing, add what did work, and what did not work well | Mind map with screenshots and post-it notes | All |
| 13:20 | Feedback and evaluation based on testing at home | Add more positive and negative aspects of the different apps based on testing at home | Mind map with screenshots and post-it notes | All |
| 13:35 | Convincing friend of app | Recommend your favorite mental health app to a friend | Roleplay, apps | All and teams |
| 14:15 | Test how the app functions in different situations | Create persona who would benefit from using the app. How do you imagine a friend who would benefit from using the app? Brainstorm their characteristics | Mind map | All |
| 14:25 | Test how the app functions in different situations | Collect places, locations, barriers, and facilitators of using the app. When, where, and why would the app not work well? | Mind map | All |
| 14:35 | Break | | | |
| 14:50 | A fly on the wall: Imagine you observe a friend how they uses an app without them knowing that you are there | Create one story where the app works well and one where the app fails | Storyboard | Individual or team |
| 15:45 | Presentation of storyboards | | | All |
| 16:00 | Design a better version | Different ideation activities to generate ideas such as story extension activity and collect stupidest ideas | Mind map, paper-post-it notes | All |
| 16:25 | Outlook next workshop day | | | All |

Table 2: Overview of activities on workshop day 2.

### Workshop Day 3: "Create your company's better concept"

| Time | Activity | Details | Material | All/Team/ Individually |
|---|---|---|---|---|
| 13:00 | Recap | Explain workshop and app to new person and facilitator | Artifact produced so far, phones, tablets | All |
| 13:30 | Design a better version | Collect key features of your app | Mind map, post-it notes | Team |
| 14:00 | Design a better version | Brainstorm ideal way how others find the app | Mind map, post-it notes | Team |
| 14:15 | Design a better version | Create a Google Play Store description of your app | Google Play Store template | Team |
| 14:45 | Break | | | |
| 15:00 | Further develop your idea | Create a prototype of your idea | Paper prototyping | Team |
| 15:45 | Pitch idea to a friend | Roleplay: other team asks critical questions with the help of mind map showing negative aspects of other apps | Roleplay, mind maps | All |
| 16:20 | Wrapping up: Inviting everyone to continue using apps | | | All |

Table 3: Overview of activities on workshop day 3.

# Appendix E: Documentation Analysis of STUDIES 1–3

## Pictures Documenting Coding Sessions

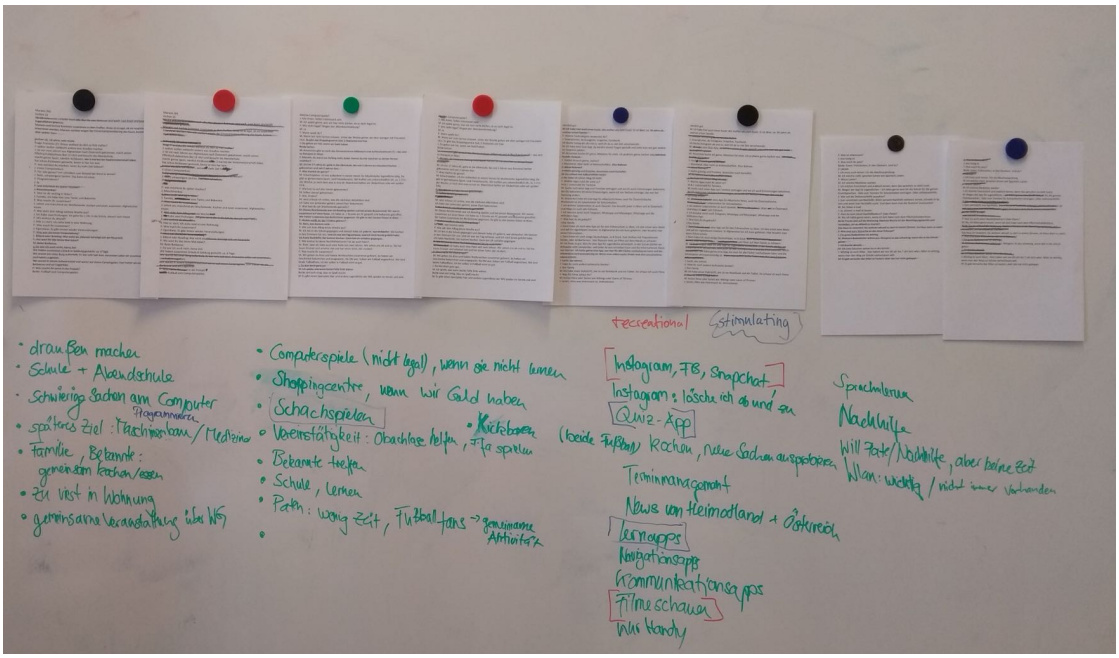



Figure 1: Picture documenting a session as part of the second phase of the thematic analysis (see phases in *Section* 4.3) where I, together with a colleague and one of my supervisors, coded selected transcripts.

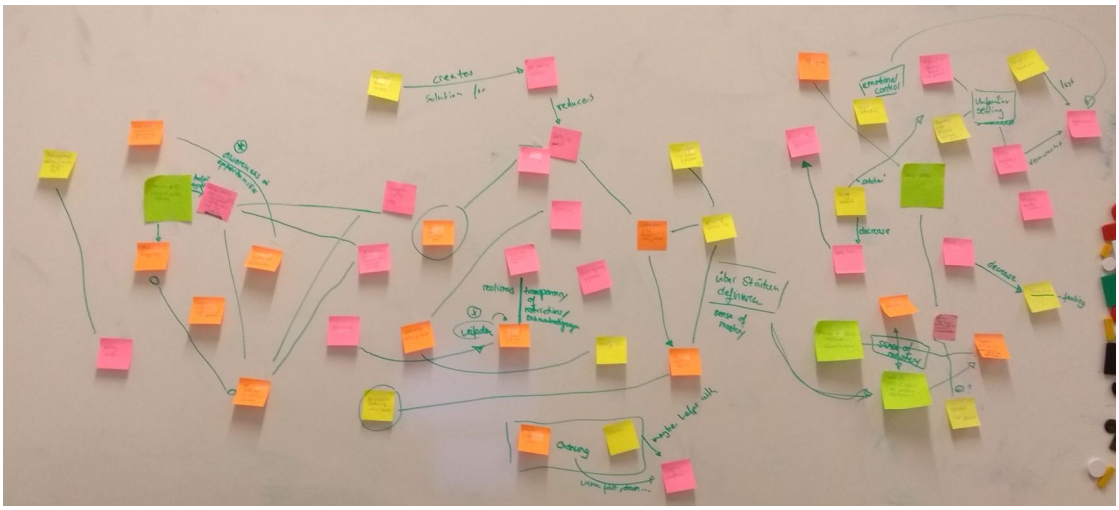



Figure 2: Picture documenting a session as part of the second phase of the thematic analysis (see phases in *Section 4.3*) where I presented selection of codes to one of my colleagues, and we brainstormed connections between each code.

# STUDY 1: Mind Maps

As part of the analysis process, I used different resilience theories to answer RQ 1: *How does resilience promotion currently play out in the everyday context of UMY?*. I followed the 5 phases of the thematic analysis process described in *Chapter 4*. In doing so, I identified that (1) UMY have to deal with many external and internal stressors that are caused by the political situation, (2) political regulations hamper UMY to follow their preferred coping strategies and thus coping with their stressors, and (3) different adult support workers play an essential role in promoting resilience but face many barriers. At this point of the analysis process, my focus still was on individual resilience. Thus, I draw on the theory by Bernard (1993, 1995) on the individual attributes of a resilient child. These attributes are social competence, problem-solving skills, critical consciousness, autonomy (Bernard, 1993, 1995), and a sense of purpose (Bernard, 1995). I mapped the different attributes to how different support groups promote resilience in UMY (see Figure 3). This mapping process led to the first maps setting out the different social actors and their role in promoting resilience in UMY, qualities and challenges of each support group (see Figures in *Section 10.3*), and maps showing potential opportunities for (technology-enabled) support (see Figures in *Section 10.3*).

## Mapping Supporters' Way of Supporting to Attribute of a Resilient Child

When the thematic analysis started to point towards the importance of the social-ecological interplay, I developed different visual maps to map out the interplay between actors and to locate challenges and opportunities in these social-ecological maps. In these maps, I mapped the way how different support groups promote resilience in UMY to UMY's stressors, which I also identified as part of the analysis, and to the five attributes of a resilient child by Bernard (1993, 1995) (see Figure 3).

## Qualities and Challenges of Each Support group

To identify the potential technological intervention points, I added a layer on top of the mind maps to locate the challenges and qualities of the different relationships/support structures. The qualities of the different support groups relate to the different enablers and approaches to promote resilience in UMY (see *Sections 5.4* and *5.5*). Figure 4 to Figure 6 show the different mind maps for each group of supporters.

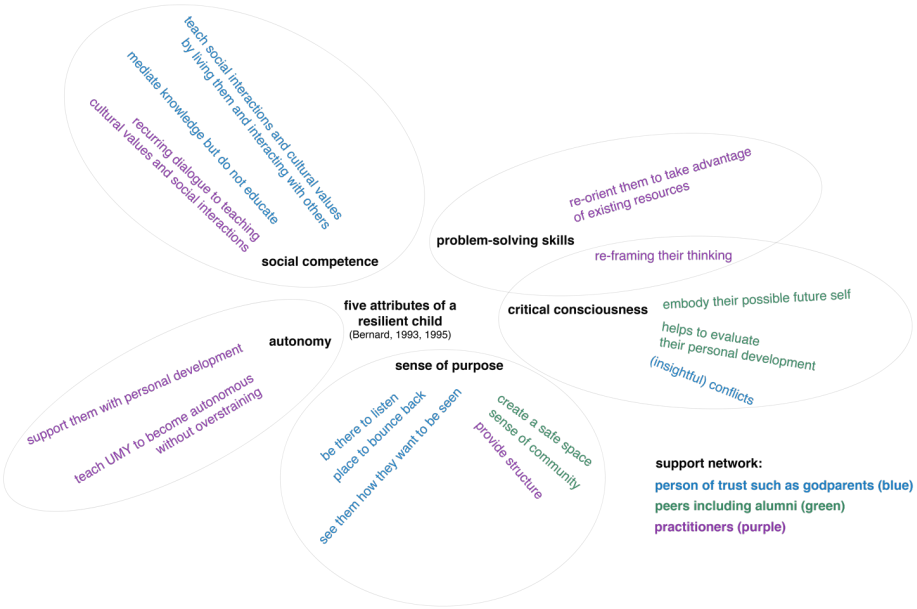



Figure 3: Map attribute of a resilient child. Practitioners (professional support workers) include all social workers and teachers. Person of trust includes mentors.




Figure 4: Support by practitioners (professional support workers including social workers and teachers) – opportunities and challenges.




Figure 5: Peer support – opportunities and challenges.

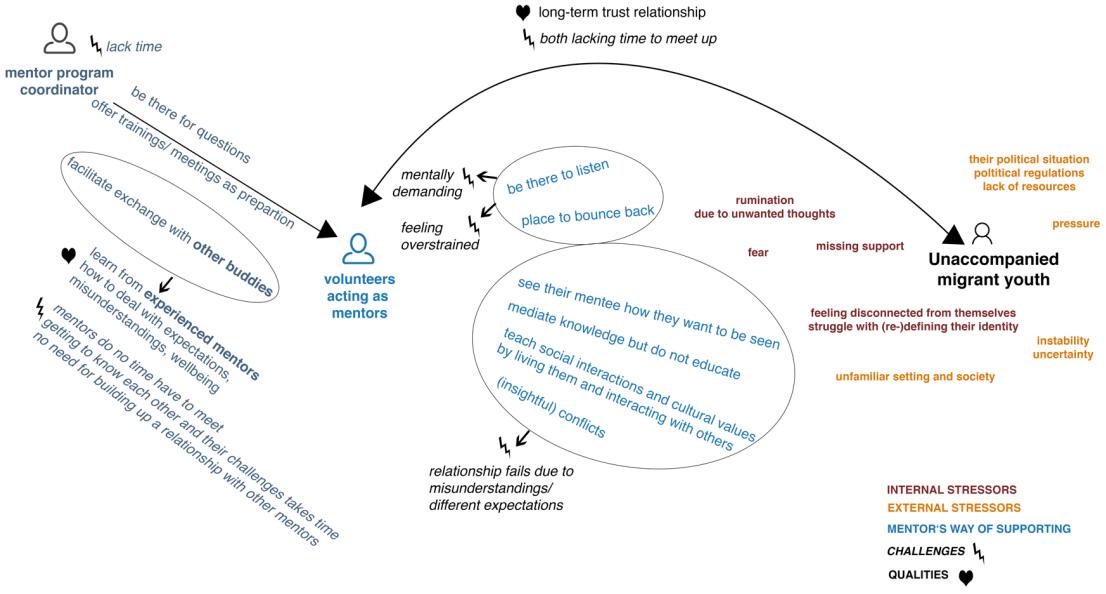



Figure 6: Support by person of trust (mentors)– opportunities and challenges.

## Map: Opportunities for Support

On top of these maps, I added another layer of potential opportunities for support that take into account these challenges and qualities (see Mind Maps Figures 7 to 9).




Figure 7: Support by practitioners (professional support workers including social workers and teachers) – opportunities for support.

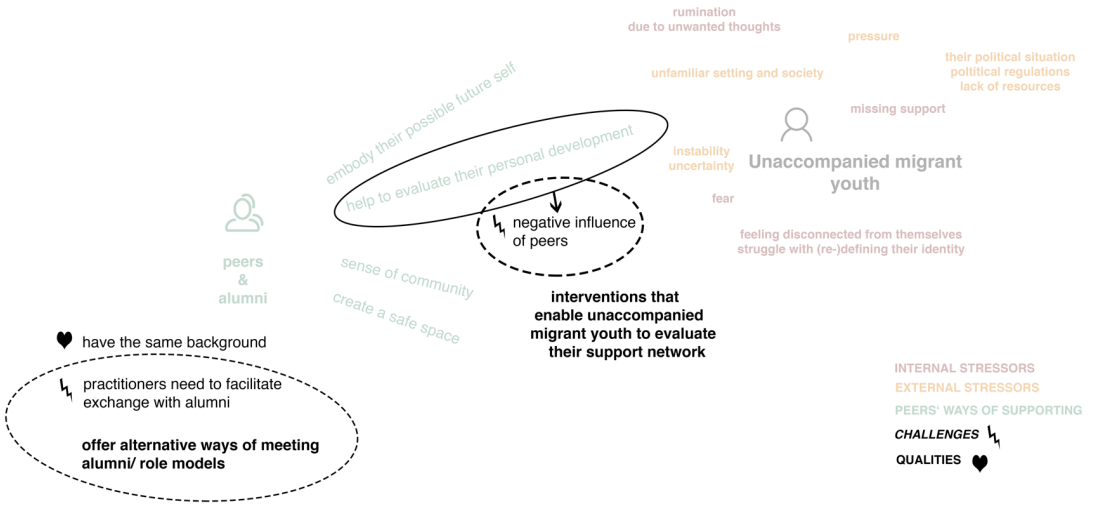



Figure 8: Peer support – opportunities for support.

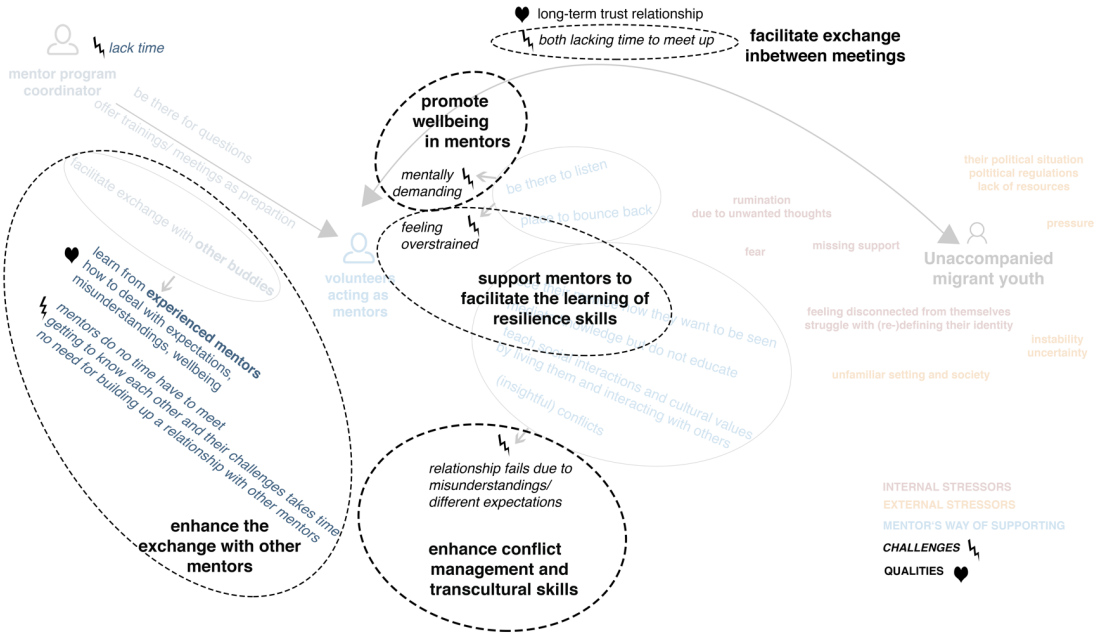



Figure 9: Support by person of trust (mentors) – opportunities for support.

# Software Used in Analysis

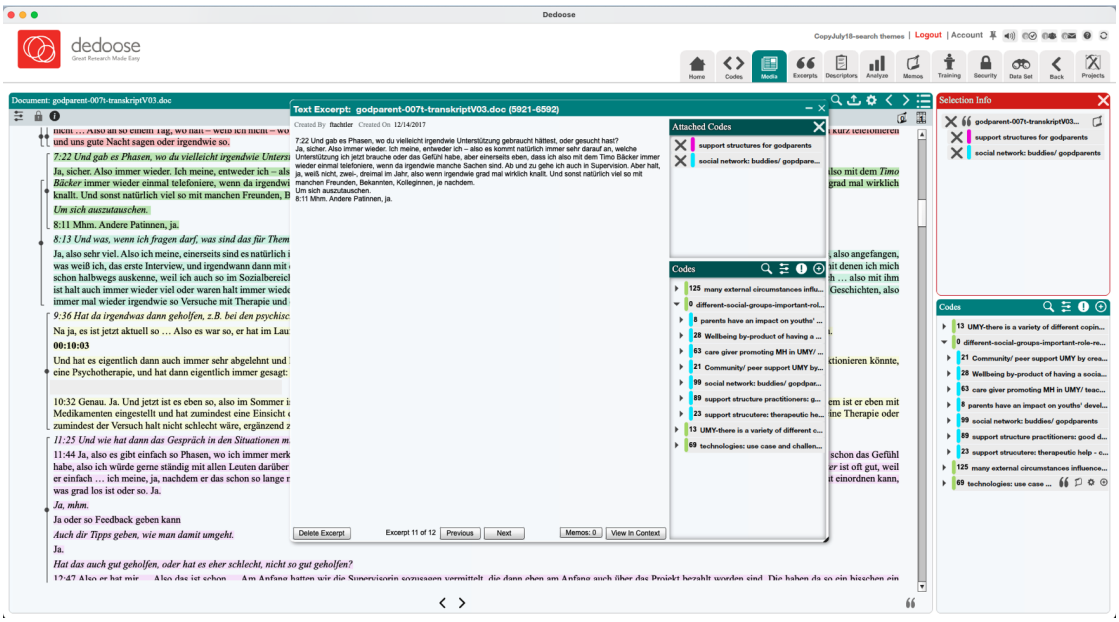



Figure 10: Screenshot of Dedoose software displaying fragment of the colour coded transcript and the assigned top level codes of STUDY 1.

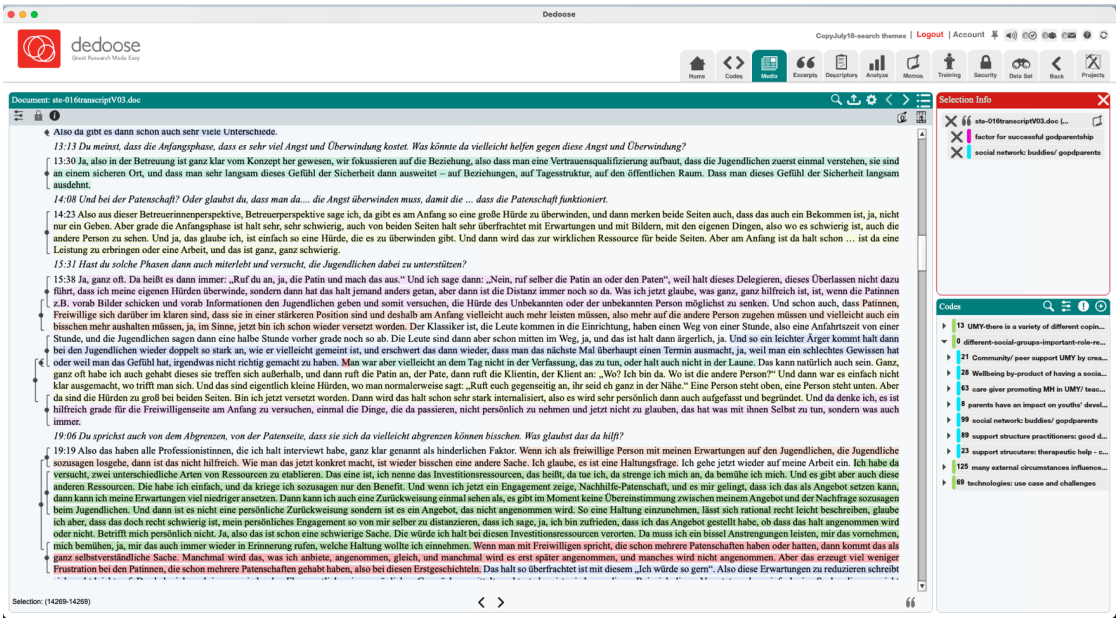



Figure 11: Screenshot of Dedoose software displaying another colour coded transcript of STUDY 1.

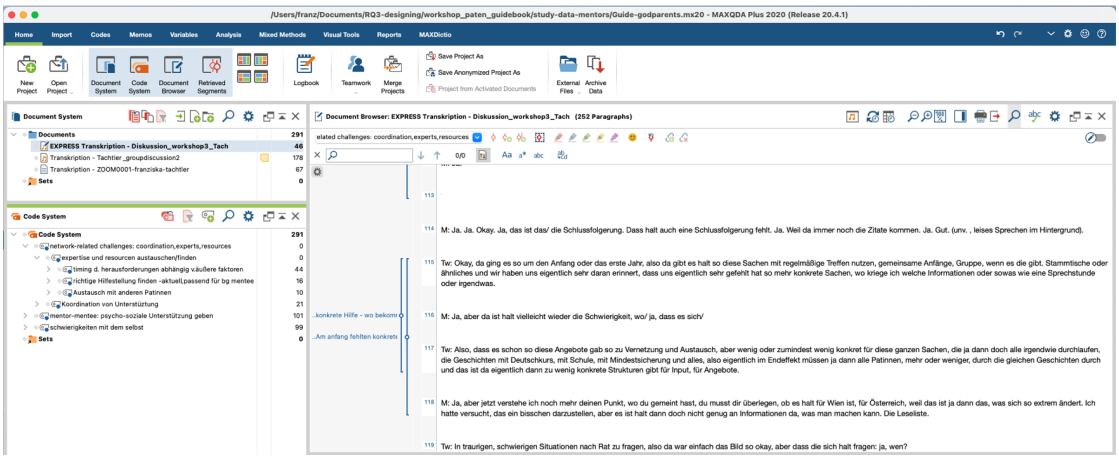



Figure 12: Screenshot of MAXQDA software displaying a code, assigned codes, and code system with different sub-codes. This screenshot shows the transcript and coding system of STUDY 2.

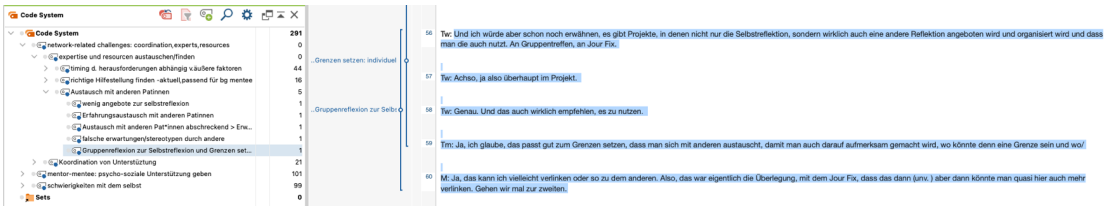


Figure 13: Screenshot of MAXQDA software displaying a code, assigned codes, and code system with different sub-codes. This screenshot shows the transcript and coding system of STUDY 2.

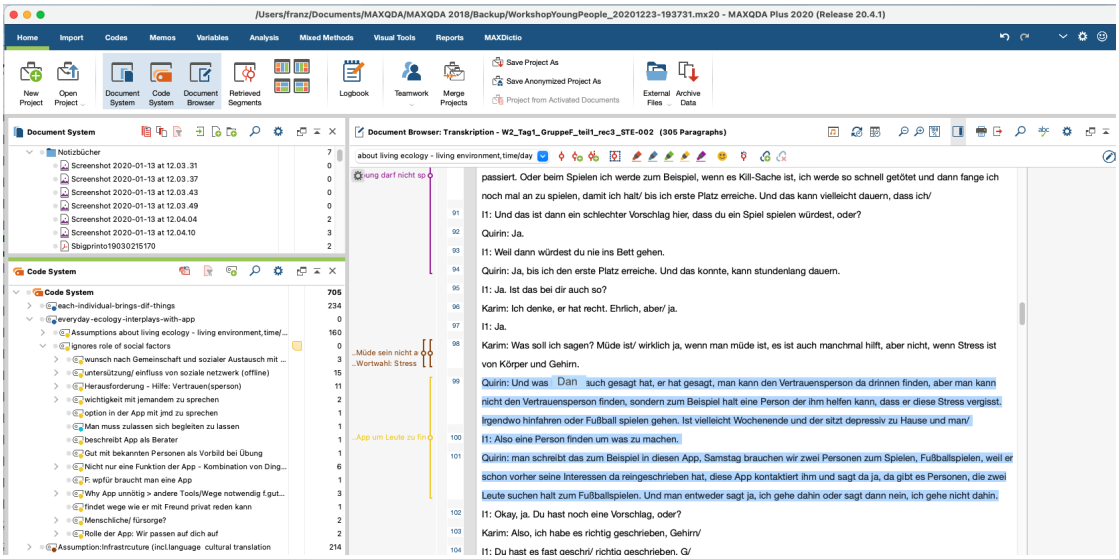


Figure 14: Screenshot of MAXQDA software displaying a code, assigned codes, and code system with different sub-codes. This screenshot shows the transcript and coding system of STUDY 3.

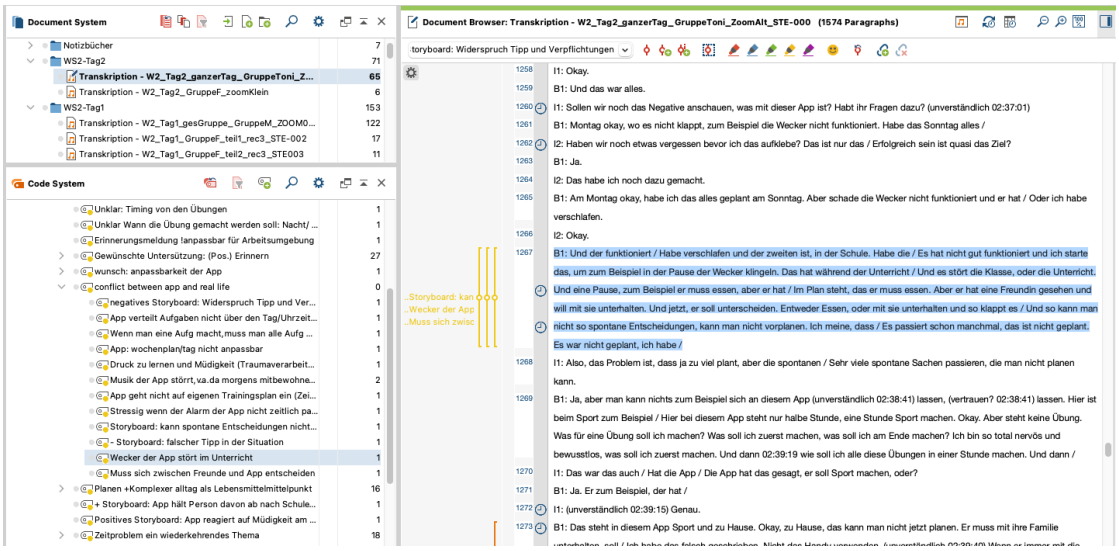



Figure 15: Screenshot of MAXQDA software displaying a code, assigned codes, and code system with different sub-codes. This screenshot shows the transcript and coding system of STUDY 3.

# Appendix F: Outcomes of Co-Design Workshops (STUDIES 2–3)

## STUDY 2: Final Guidebook

### Chapters

The guidebook chapters were oriented towards the categories of mentors' advice. In addition, the guidebook included a chapter on mental health support, as this became an increasingly important topic where the mentors wished to receive more support.

List of the chapter titles:

1. What is a mentorship?
2. Challenges
3. Overview of Advice
    a) setting boundaries and making offers;
    b) patience and openness;
    c) being part of a network of supporters;
    d) providing mental health support;

### Content Design

To better communicate the advice, I included visualizations of the exemplary situations that mentors brought up during the discussion to illustrate their advice or the situation when they needed more support. In addition, I included different quotes by the mentors illustrating the challenge or advice.

As the mentors emphasized the importance of constant reflection and awareness, e.g., of their own boundaries, the guidebook includes several activities for self-reflection and spaces/text boxes to write these self-reflections into the guidebook.

## Local/Specific vs. Transferable/Timeless

At workshop day 3, the content and design of the guidebook triggered a discussion on certain design decisions: namely if it is better to design a guidebook that is very specific to the context and the current situation or whether the guidebook then gets quickly outdated and that it is better to design more guidebook with more general principles. Such a guidebook would then be applicable across different contexts, even countries, but lack specificity and the reader still needs to search for the local information (e.g., local initiatives that are not well known but help with common challenges such as finding an apprenticeship). The mentors argued for making the guidebook applicable to different contexts and more general and recommended to point the reader/ other mentors where the new mentors could find more local information (e.g., online or mentor program coordinator).

## Right Mental Health Advice

In addition, the chapter on mental health contained specific advice on how to provide psycho-social support, e.g., going for a walk and ways to talk about mental health. However, the mentors still missed more specific support, especially when their mentee suffers from severe depression but refuses professional help.

One important element of providing mental health support was also the mentor's own mental health.

## Pictures Showing Workshop Activities




Figure 16: Post-it notes from STUDY 2, workshop day 1.

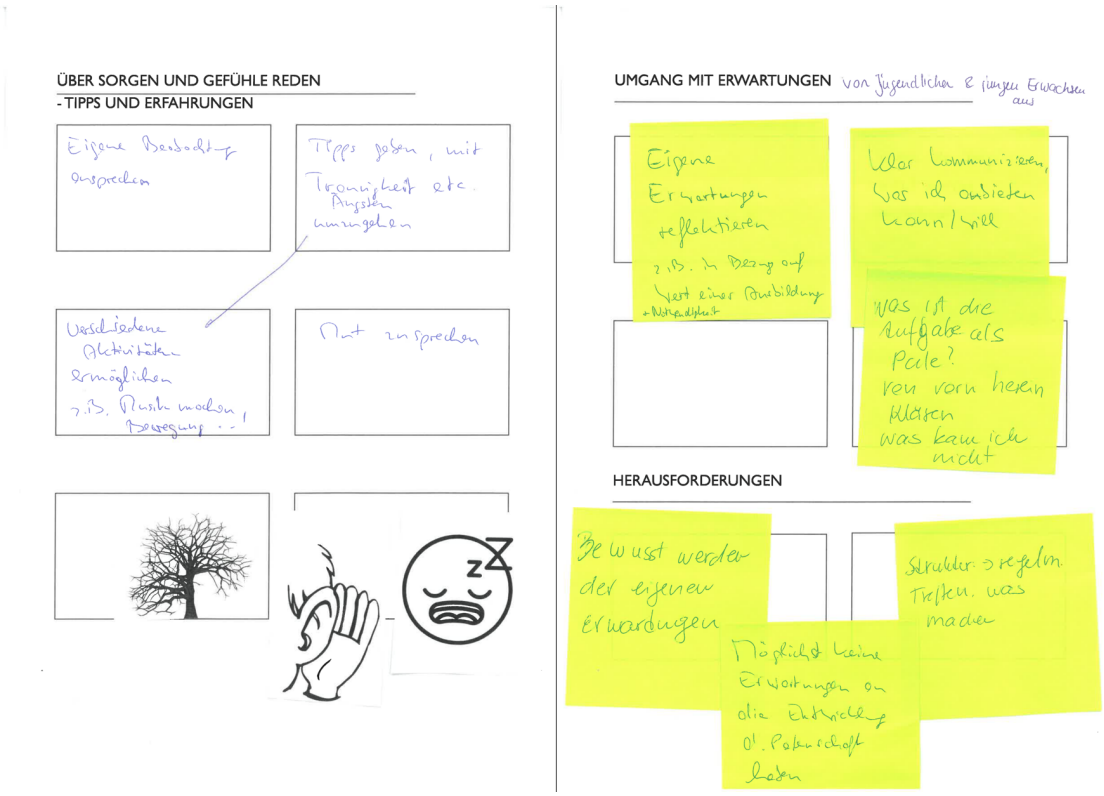
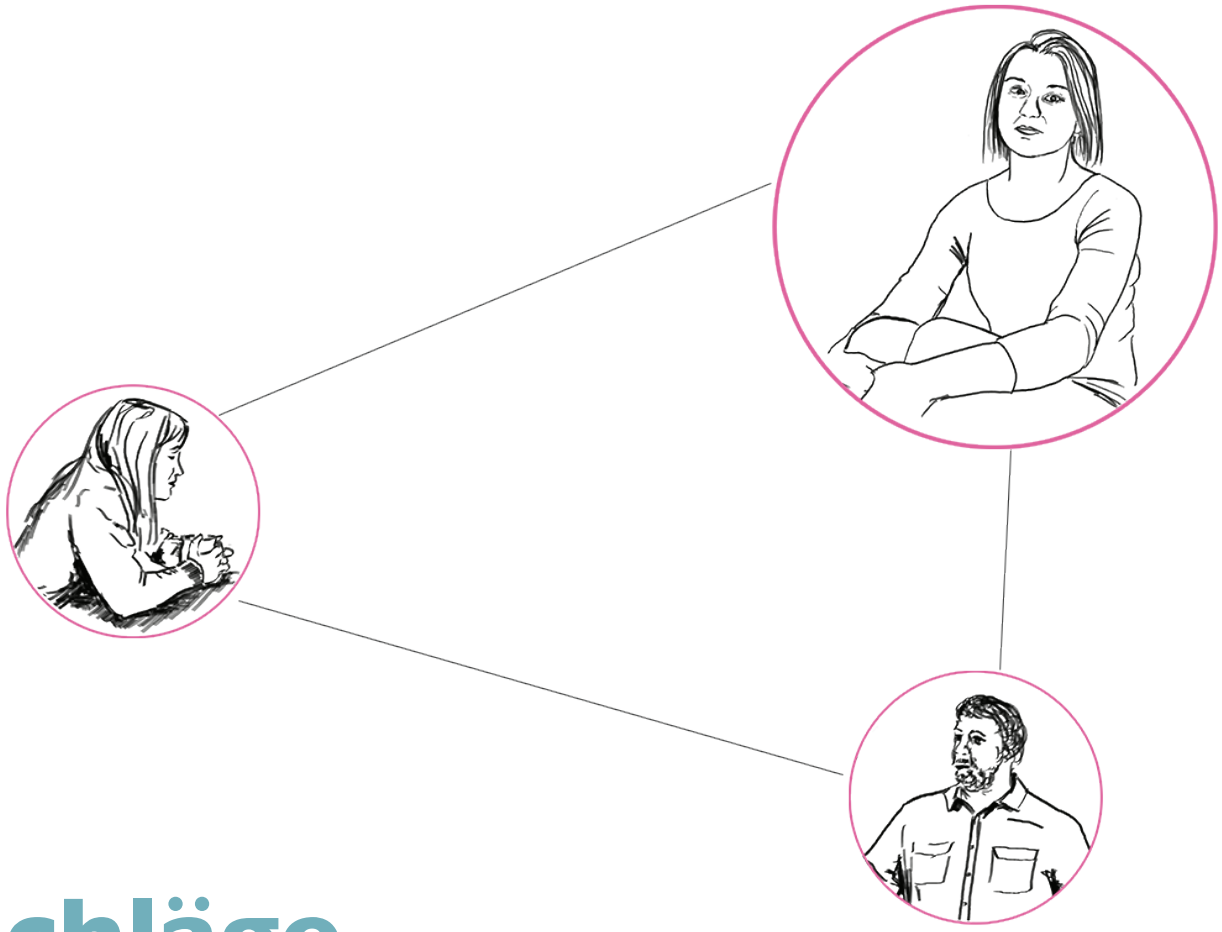



Figure 17: Picture of STUDY 2, workshop day 2.



Figure 18: Picture of STUDY 2, workshop day 3.

**Final Guidebook Document**



# Ratschläge
# von Pat*innen für Pat*innen

Diese Ratschläge sind in einer Reihe von Workshops mit sieben Pat*innen, die eine oder mehrere Patenschaften betreuen, und einem Sozialarbeiter entstanden. Diese Workshops fanden im Rahmen eines Forschungsprojektes statt, das durch das EU Horizon 2020 research and innovation programme der EU, Marie Skłodowska-Curie grant agreement No. 722561, gefördert wurde.






TEAM
Technology Enabled Mental Health

# Übersicht

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   - Geduld und Offenheit
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# 1. Was ist eine Patenschaft?

*„Das Schöne an den Patenschaften ist, dass sie wirklich auch ausstrahlen.“*

*„Ich habe nach wie vor das Gefühl, wenn er etwas braucht, zum Beispiel jetzt die Verlängerung des subsidiärern Schutzes, da ist ganz klar, dass wir das mit ihm machen.“*

*„Die Jugendlichen präsentieren ein Bild: man muss beim BfA den Flüchtling geben, bei der Polizei muss man den Anständigen geben und in der Betreuungseinrichtung muss man den Zuverlässigen geben. Was muss man jetzt in der Patenschaft geben? Wenn dann einmal klar wird, ich kann hier so sein, wie ich bin, und ich werde so gesehen, wie ich bin, dann ist das das Großartigste.“*

*„Dieses Sein-Können wie man will oder einfach auch die Akzeptanz zu spüren, ohne jetzt irgendeine Rolle zu bringen, ohne der Hochleistungsstar zu sein.“*

Jede Patenschaft ist verschieden und oft sehr individuell.
Es kann für beide Seiten sehr bereichernd und lehrreich sein.
Es gibt verschiedene, lokale Programme, die einen gewissen Rahmen setzen, in dem sie die Rolle der Pat*innen mehr definieren: Zum Beispiele, dass die Pat*innen dafür zuständig sind, dass sie in der Schule oder im beruflichen Bereich unterstützen.



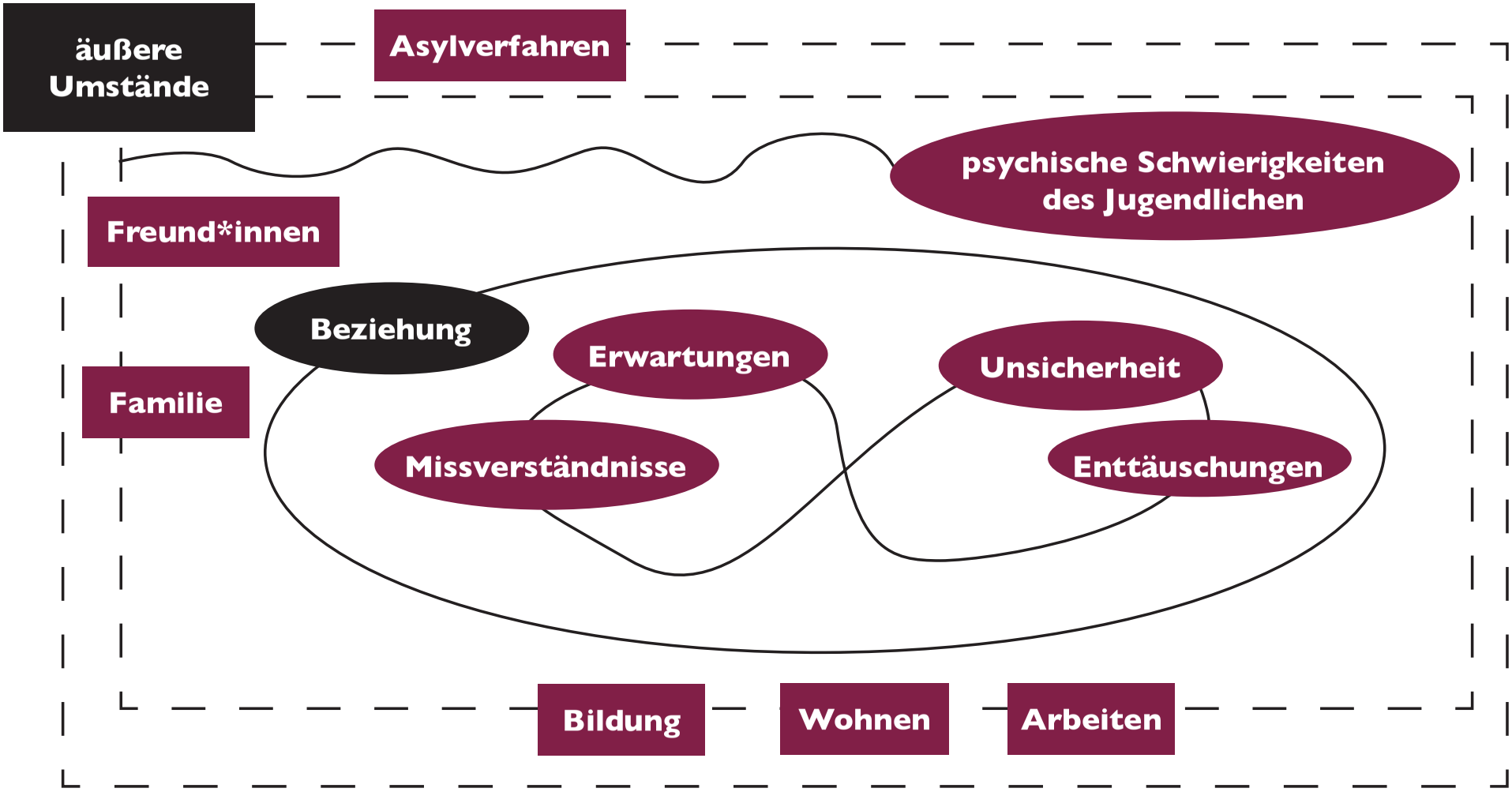
# 2. Herausforderungen

*„Wenn der Status stimmt und man eine Lehre aufnehmen darf, dann ist vieles einfacher.“*

Viele Herausforderungen sind abhängig von äußeren Umständen wie das Asylverfahren, Familie und Unterkunft. Ein fehlender Asylstatus oder negativer Bescheid erschwert die Situation.

*„Es ist schon eher am Anfang beim Kennenlernen, dass verstärkt Missverständnisse auftreten und Enttäuschungen sich durchaus auch einstellen. Zum Beispiel, dass man sich am falschen Ort oder zur falschen Uhrzeit trifft.“*

Die Zeitpunkte von Herausforderungen in der Patenschaft sind unterschiedlich. Manche Herausforderungen sind mehr am Anfang in der Beziehung, andere kommen immer wieder, und andere sind mehr relevant, wenn die Beziehung enger wird.




Herausforderungen am Anfang des Beziehungsaufbaus sind Erwartungen, Missverständnisse, Unsicherheit und Enttäuschungen. Ursache für Missverständnisse und Enttäuschungen können sein, dass Erwartungen zu hoch sind und Angebote nicht klar kommuniziert wurden, siehe Seite 12 „Grenzen und Angebote setzen“.

## Herausforderungen: Erwartungen

Stimmen über Erwartungen am Anfang der Patenschaft:

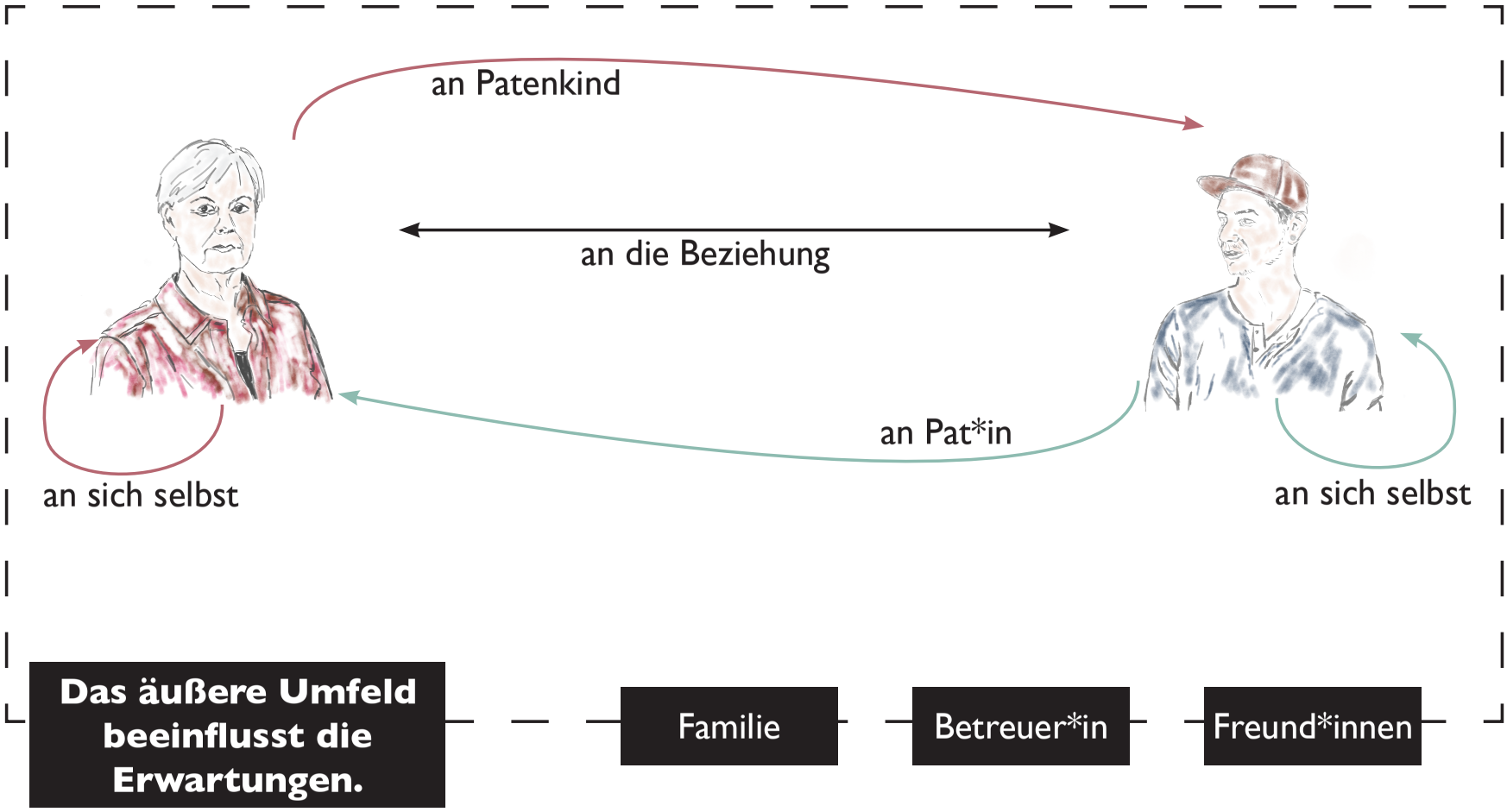
*„Am Anfang hatte ich sehr hohe Erwartungen vor allem an mich. Da geht es gar nicht um die Erwartungen an das Gegenüber, sondern ich hatte für mich diesen Anspruch, dass es jetzt gut laufen muss. Wenn das nicht gut läuft und die Kommunikation nicht funktioniert, dann mache ich etwas verkehrt.“*

*„Herausfordernd auf beiden Seiten sind auch Erwartungen, was eine Patenschaft überhaupt sein soll. Jetzt glaube ich, was es dann wirklich ist, sehr individuell ist, aber auch die Vorstellungen am Anfang sehr unterschiedlich sind oder es keine Vorstellungen gibt.“*

Gerüchte und Austausch mit sozialen Kontakten beeinflussen die Erwartungen:

*„Für mich war es so, dass Erwartungen geweckt werden, weil bestimmte Stereotypen kreiert werden, wenn man mit anderen Leuten spricht. Bei uns war damals das Thema, dass die afghanischen Jugendlichen unglaublich gern lernen.“*

*„Wenn ein Gerücht aufkommt, dass einer von der Patenfamilie ein Handy bekommen hat, dann vervielfältigt sich das. Dann kommt das als Erwartung dann in einer ganz anderen Patenschaft plötzlich zum Tragen.“*

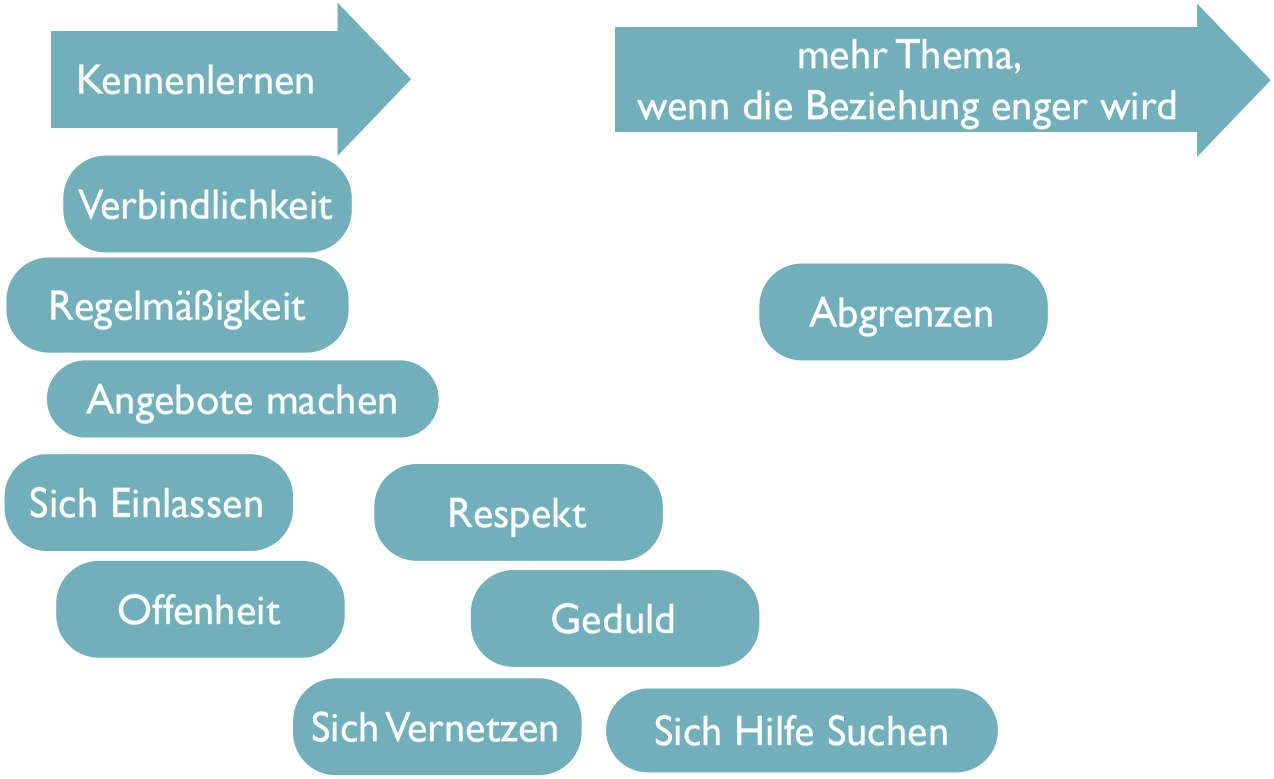



In einer Patenschaft gibt es Erwartungen auf verschiedenen Ebenen: Die Pat*innen haben Erwartungen an sich selbst, an die Beziehung und an das Patenkind. Die Jugendliche haben Erwartungen an sich selbst, die Beziehung und an die Pat*in. Äußere Faktoren wie Familie und Freund*innen beeinflussen die Erwartungen. Es ist hilfreich Erwartungen ständig zu reflektieren, siehe Seite 14.

# 3. Übersicht der Ratschläge

## Was hilft um mit den verschiedenen Herausforderungen umzugehen?

Es gibt viele verschiedene Ratschläge, die bei den genannten Herausforderungen helfen. Manche sind mehr relevant, wenn die Beziehung enger wird (zum Beispiel Abgrenzen). Verbindlichkeit, Offenheit, und Geduld braucht es vor allem am Anfang aber nicht nur.



# 3. Übersicht der Ratschläge

## Grenzen und Angebote Setzen

*„Ich habe mich irrsinnig schwer getan am Anfang Grenzen zu setzen, weil er ist bei uns angekommen und dann hat sich das Leben von einem Tag auf den anderen total verändert. Mein Ratschlag ist, sich früher Gedanken zu machen.“*

*„Am besten sagt man von Anfang an, was man anbietet und wie viel Zeit man hat. Ich habe teilweise gehört, dass gewisse Enttäuschungen da sind und dass die Jugendlichen sagen: ‚Der hat nie Zeit oder der ist nie für mich da.‘“*

*„Am Ende muss man sich selber helfen und Hilfe von anderen annehmen können. Das ist ein Schritt, den muss jeder und jede für sich selber gehen. Deswegen bin ich da und strecke meine Hand aus, aber fassen muss er sie selber.“*

## Wie setzt man Angebote?

*„Verbindlichkeit finde ich wichtig. Einerseits am Anfang klar zu machen: Das ist jetzt ein Angebot, ich bin zu nichts verpflichtet, auch nicht zur Verfügung zu stehen. Ich tue es gerne. Ich möchte auch, dass du es ernst nimmst.“*

*„Vor allem wenn am Anfang die Jugendlichen überhaupt keine Ideen von der Patenschaft haben, hilft es selber Vorschläge zu bringen und zu schauen, was funktioniert und was nicht. Irgendwo findet man Gemeinsamkeiten.“*

*„Angebote zu machen ist für mich einfacher als Grenzen setzen. ‚Sollen wir das jetzt machen?‘ - Entweder machen wir das oder nicht.“*

- Je nach dem Patenschaftsprogramm und der vordefinierten Rolle der Pat*innen, gibt es einen vorgegebenen Rahmen für die Beziehung. Zum Beispiel, dass die Pat*in für die Nachhilfe in den Fächern Deutsch und Mathematik zuständig ist. Falls das nicht der Fall ist, sollte man offen sein, aber auch klären, was man bieten und nicht bieten kann.

- Klar formulierte Angebote helfen einen Rahmen für die Beziehung zu setzen, den Beziehungsaufbau zu erleichtern, aber auch Grenzen zu setzen. Besonders in der Anfangsphase helfen konkrete Vorschläge wie gemeinsame Unternehmungen und sportliche Aktivitäten.

- Im Laufe der Patenschaft kann man seine Grenzen und sein Angebot reflektieren und anpassen.

## Grenzen und Angebote helfen Erwartungen zu konkretisieren.



Erwartungen an die Beziehung werden klarer.



formuliert ein klares Angebot.

- reflektiert, wie es ihr geht.
- kennt ihre Grenzen und kann sie kommunizieren.
- weiß, was ihr Angebot ist.

weiß, was er von der Patin erwarten kann.

Dies verhindert Missverständnisse und Enttäuschungen.

## Was ist ein konkretes, klares Angebot?

1 Du kannst mich immer anrufen.

2 Was möchtest du machen?

Möchtest du in ein Muesum gehen? Weißt du was ein Museum ist?



stattdessen:

1 Du kannst mich immer anrufen, aber nicht um Mitternacht nur zum Plaudern. Wenn ich nicht antworte, bin ich beschäftigt und rufe dich zurück.

2 Am Sonntag nachmittag gehe ich alleine in ein Kunstmuseum. Das heißt dort sind Bilder ausgestellt. Möchtest du mitgehen?

1 Sie möchte mir nicht helfen, weil sie beantwortet nicht meine Anrufe.

2 Egal.

Was ist ein Museum? Ich kenne nichts.



Okay

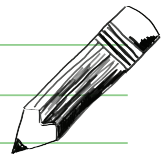
## Es ist wichtig, an sich zu denken.

*„Jeder muss für sich diese Gedanken durchgehen: Wann grenze ich mich ab und wann ist es wirklich zu viel? Wo sind meine Grenzen, die mir so wichtig sind? Sind diese Grenzen wirklich so wichtig? Ich rate, einfach mutiger mit dem Patenkind zu sprechen und nicht abzuwarten.“*

*„Solange du die Person noch nicht kennst, kannst du dir zwar theoretisch deine Grenzen überlegen, aber das ändert sich dann auch wieder. Ich hätte mir nicht vorstellen können, dass er nach einem halben Jahr bei uns einzieht. Ich kann offen sein und schauen, wie es sich entwickelt und dann immer reflektieren, ob das für mich passt oder nicht.“*

- Die Grenzen ändern sich im Lauf der Beziehung und je mehr man die Person besser kennt.
- Wenn es einem nicht gut geht, sollte man seine Grenzen reflektieren und erneuern.
- Wenn etwas unangenehm ist, spricht man es am besten direkt an.
- Gerade im Zusammenhang mit dem Asylverfahren stoßt man schnell an persönliche Grenzen. Die meisten Pat*innen hatten vorher damit nichts zu tun. Vieles ist verwirrend und unklar. Negative Bescheide können bei allen Beteiligten Ängste auslösen. Daher ist es ratsam, sich mit anderen auszutauschen und Unterstützung (auch Supervision) in Anspruch zu nehmen.

Überlege dir, was ist dein Angebot und wo sind deine persönlichen Grenzen:



Gerade für Helfer*innen ist Grenzen setzen eine sehr schwierige Aufgabe, aber es hilft Burn-Out zu verhindern. Sich seinen Grenzen bewusst zu sein kann die eigene Resilienz und das Wohlbefinden stärken.

# 3. Übersicht der Ratschläge

## Geduld und Offenheit

*„Offenheit ist ganz wichtig. Vor allem am Anfang, wenn man die Person noch gar nicht einschätzen kann und noch gar nicht weiß, wie sich das entwickelt und was da auf einen zukommt.“*

## Geduld

*„Mach es, du wirst es sehen.“*

- Pat*innen raten, sich auf die Beziehung einzulassen.
- Respekt, Offenheit und Geduld sind Eigenschaften, die bei einer Patenschaft wichtig sind.
- Offenheit und Unvoreingenommenheit helfen sich auf Augenhöhe zu begegnen.
- Geduld trägt dazu bei, Unsicherheiten am Anfang der Beziehung auszuhalten.

*„Warum nicht die eigene Erfahrung machen? Ich sage zu ihm: ‚Mach es, dann lernst du es.‘ Wenn ich sage, wie er es machen soll, glaubt er es nicht.“*

- Die Kunst ist so zu helfen, dass das Patenkind seine eigene Erfahrung macht und so ein Erfolgsgefühl erlebt.
- Deshalb ist die Frage, wo traue ich dem Patenkind zu eigene Erfahrungen zu machen, und wo ist die Faktenlage so, dass man eingreifen sollte.

Selbstwirksamkeit beschreibt die eigene Kompetenz- und Kontrollüberzeugung, d.h. das Vertrauen in seine Fähigkeiten und sein Können. Selbstwirksame Menschen glauben in der Lage zu sein, neue Dinge erfolgreich zu lernen, Einfluss zu nehmen und damit Herausforderungen erfolgreich zu bewältigen. Dieser Resilienzfaktor ist daher eng mit einem hohen Selbstvertrauen und Selbstwertgefühl verbunden.

## Beispiel: Geduld und Offenheit bei der Lehrstellensuche




*„Ich habe da schon ein bisschen gebraucht zu lernen, dass mein Patensohn überhaupt nicht weiß, was das Berufsbild ist und solche Sachen. Einfach Geduld.“*

*„Ich hatte mich für diese Lehrstelle dahinter geklemmt und nach einer Woche wollte er sie nicht mehr.*
*Da habe ich sehr viel mit mir selber ausmachen und viel nachdenken müssen. Ich bin dann geduldiger geworden und habe auch Grenzen gesetzt.*
*Nach der dritten Lehrstelle, die nichts gewesen ist, habe ich gesagt: ‚Jetzt suche ich nichts mehr, jetzt musst du alleine suchen. Ich schreibe keine Bewerbungen mehr.‘*
*Das hat gut funktioniert. Er hat selber etwas gesucht.“*




Es gibt unterschiedliche, lokale Programme, die z. Bsp. bei der Jobsuche helfen.
Sprich mit deiner Programmleitung und rechechiere online.
Achte auf die Teilnahmebedingung, z.Bsp. Asylstatus.

## Sich Zeit lassen beim Aufbau der Beziehung

Der Aufbau einer Beziehung braucht Zeit und es gibt auch Rückschläge:



**Zunahme von Vertrauen**

„Die Person will mir nichts Böses tun und möchte mich unterstützen."

„Ich traue mich, bei Problemen um Hillfe zu fragen."

„Ich traue mich, Sorgen zu teilen, nicht perfekt zu sein und unter Umständen eine Pupertät nachzuholen."

Liebe endet nicht

*„Ich hatte hohe Erwartungen an mich und dachte, jetzt hat er endlich jemanden, der schaut nur auf ihn. Aber er kann sich manchmal noch nicht öffnen und vertrauen. Er sagt selber: ‚Ich will mit dir reden, aber ich kann nicht.' Deswegen lerne ich geduldig zu sein und er lernt, sich ein bisschen zu öffnen und nicht immer so perfektionistisch zu sein."*

Es ist wichtig, die Beziehung nicht gleich aufzugeben, wenn es anfangs Schwierigkeiten gibt. Viele Jugendliche mit Fluchthintergrund mussten Enttäuschungen von anderen erleben. Deshalb ist es für sie nochmal schwieriger, einer fremden Person zu vertrauen.

## Rhythmus und Regelmäßigkeit helfen beim Beziehungsaufbau.



*„Am Anfang auf jeden Fall versuchen irgendeinen Rhythmus reinzukriegen. Paten treffen ist wie Volleyballtraining. Das findet mittwochs und donnerstags von 17 bis 19 Uhr statt.“*

*„Wir haben gesagt, dass wir uns einmal die Woche treffen, und haben dann einen Rhythmus gefunden. Dann haben wir angefangen gewisse Aufgaben miteinander zu teilen, zum Beispiel Schulbesuche.“*

*„Zwar haben wir jedes Wochenende etwas gemeinsam unternommen, aber es hat trotzdem ca. ein halbes Jahr gedauert, bis er angefangen hat, auch über Probleme zu reden, über Dinge die ihn beschäftigen, und von sich aus damit zu uns zu kommen.“*

Äußerer Druck wie das Asylverfahren und Schule machen es oft schwierig sich Zeit zu lassen:

*„Wenn sie kurz vorm Umziehen sind oder einen negativen Bescheid bekommen, dann entsteht sehr schnell ein Thema. Da ist eine ganz andere Bedürftigkeit und Notwendigkeit sich schnell zu öffnen. Es sind einfach viel akutere Probleme. Das schweißt zusammen. Unser Patenkind hat gesehen, dass wir da sind und helfen. Trotzdem war noch eine gewisse Distanz da. Dann hat es erst eine Weile gebraucht. Jetzt habe ich das Gefühl, er kann sich echt fallen lassen.“*

*„Wir haben auch gedacht, wir gehen das langsam an, aber es war trotzdem schon sehr, sehr emotional.“*

## Respekt beim Gespräch über Werte und Geschlechterrollen

Es ist sinnvoll, sich auf eine wertschätzende Art auszutauschen. Man muss nicht gezielt Werte vermitteln. Mit der Beziehung kommt die Wertschätzung der Werte.

*„Wertevorstellung kennenzulernen und Verständnis für einander zu haben ist ein Prozess - bei mir, bei uns in der Familie, und bei ihm."*

*„In dem Moment, wenn du über Werte redest, hast du eine Beziehung zu demjenigen. Du wirst nicht die Beziehung abbrechen, weil die Person auch in grundlegenden Sachen anderer Meinung ist. Er verletzt ja nicht mich damit."*

*„Ich bin oft an meine Grenzen gestoßen, wenn ich die Werte nicht mehr nachvollziehen kann. Aber trotzdem habe ich noch eine funktionierende Beziehung zur Person und die rettet mich dann über die Situation."*

*„Zum Beispiel meinte mein Patenkind einmal ‚Dein Mann kann ja nicht zuhause bleiben, weil ihm ist ja fad mit dem Baby.' Und da sagte ich: ‚Ja, mir ist auch fad.' Dann hat man gemerkt, wie das zu der Erkenntnis reicht, dass der Mama auch fad sein kann."*

*„In Bezug auf das Rollenbild, also das Frauenbild, da habe ich mich echt ein bisschen davor gefürchtet. Aber das war von Anfang an total ein nettes Verhältnis. Ich habe überhaupt nichts irgendwie Schlechtes erfahren durch ihn. Auch als er bei uns gewohnt hat."*

*„Ich finde die Patenschaft auch sehr gut als Reflexion. Beim Thema Wertevorstelleungen und dem ganzen Zusammenleben gibt es für mich und für uns beide viele Aha-Erlebnisse: Wie leben wir überhaupt? Welche Gedanken haben wir überhaupt? Und wie unterscheidet sich das von seiner Welt und seinen Gedanken?*
*Die Unterschiede sind oft viel, viel kleiner als wir uns das vorstellen. Wir sind genauso Menschen, die Liebe wollen und liebevoll in Frieden leben. Es gibt nicht nur diesen einen Weg, es gibt tausende Wege.*
*Es freut mich, wenn ich sehe wie beim letzten Mal, als A. und ein Freund von ihm über Werte gesprochen haben, weil er eine Quizz-App hat auf einem Handy und die Frage war, ob Männer Männer oder Frauen Frauen heiraten dürfen. Da habe ich echt innerlich lachen müssen, als er dem Freund erklärt hat, dass es in Österreich so ist, und ich weiß, dass das für ihn total befremdend ist.“*

*„Mein Patenjunge hat so für sich die Erkenntnis getroffen, er kann die verschiedenen Werte nicht mehr zusammenbringen und deswegen entscheidet er sich jetzt für diese Welt. Er kann nicht immer nur seinem Papa sagen: ‚Ja, ich bemühe mich in die Moschee zu gehen.‘ Irgendwann sagt der Papa: ‚Ja, bemühen reicht nicht.‘ Er hat auch einen Bruder, der in Österreich ist, und er wolle nie, dass ich den kennenlerne, weil das war einfach seine andere Welt.“*

# 3. Übersicht der Ratschläge

## Teil eines Unterstützer*innennetzwerks

*„Es ist wichtig, dass alle an einem Strang ziehen, nicht gegeneinander arbeiten und genau wissen, dass sie verteilte Rollen haben.“*

*„Hilfe von verschiedenen Betreuer*innnen funktioniert dann gut, wenn die Rollen klar definiert sind und nicht zwei an der gleichen Baustelle und gegeneinander arbeiten.“*

*„Als Betreuer*in ist man mit dem Problem konfrontiert, dass die Jugendlichen überlegen, bei welcher Betreuer*in bekommen ich was? - Es ist total wichtig, dass klar ist, dass das entweder überall gleich ist oder dass es eine Person gibt. Und bei der Person geht es um den Beziehungsaufbau.“*

## Die Patenschaft als Teil eines Netzwerks von Unterstützer*innen

Das Patenkind hat meist Zugang zu einem Netzwerk von Unterstützer*innen mit verschiedenen Expertisen und Rollen. Oft sieht das Netzwerk der Jugendlichen sehr verschieden aus.

Eine Patin stellt das Netzwerk ihres Patensohns, der unter 18 ist, vor:



### Bezugsbetreuerin

*„Ich hätte gern mehr Kontakt mit ihr. Aber mein Patenjunge ist sehr kommunikativ und erzählt mir, was die anderen gesagt haben und den anderen, was ich gesagt habe.*
*Er hat zuerst in einer anderen WG gewohnt. Da hatte er eine ganz tolle Betreuerin, die hat mich angerufen, zum Beispiel vor einem Treffen vorgewarnt, als er wegen Medikamenten etwas benebelt war.“*



### Schuldirektorin

*„Sie hat dafür gesorgt, dass er noch ein Jahr in die HAK gehen darf.*
*Sie hat eine ganz andere Rolle als ich. Sie hat den Bildungsweg im Kopf.“*



### Nachhilfelehrer

*„Er gibt nur Mathe-Nachhilfe und ich bin sehr schlecht in Mathe.“*



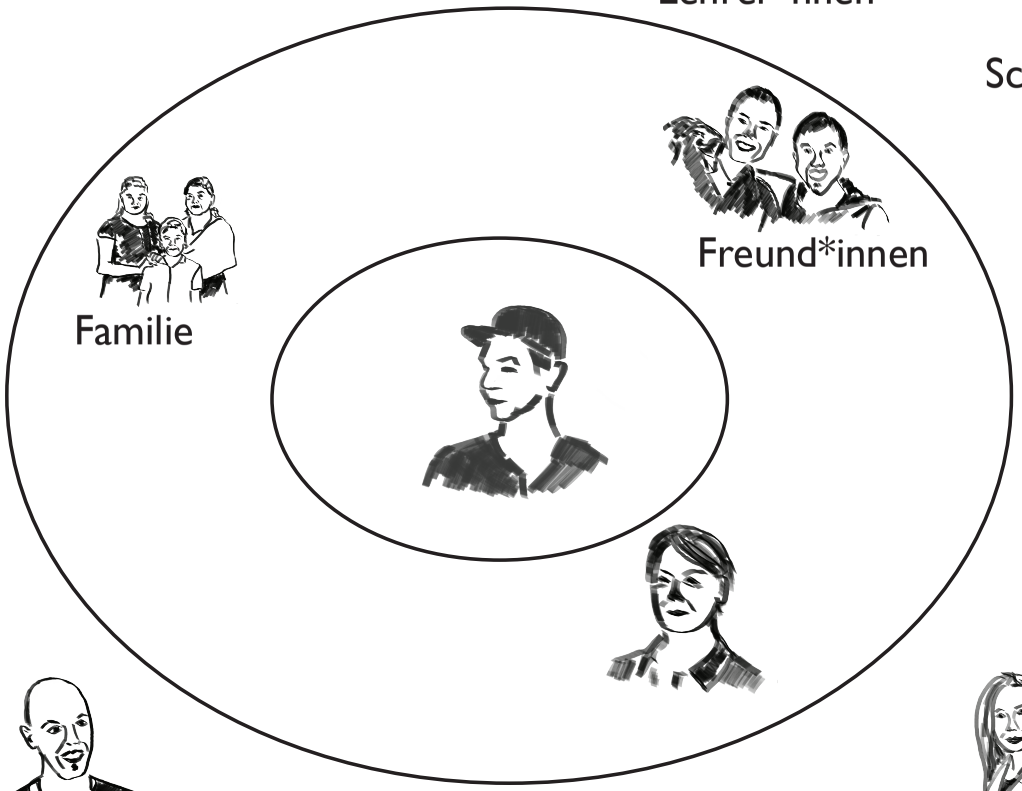
### Familie

*„Er hat denn Kontakt komplett abgebrochen. Er hat so für sich die Erkenntnis getroffen, dass er das nicht vereinbaren kann.“*

Baue deine persönliche Karte der Unterstützer*innen deines Patenkinds.
Wer ist für was zuständig?

?

Personen,
von denen
du vielleicht
nichts weißt



Lehrer*nnen



Schule



Freund*innen



Familie



Wohnheim



Bezugsbetreuer*innen
Sozialarbeiter*innen



Nachhilfelehrer*innen



Therapeut*innen

## Pat*innen empfehlen, sich früh zu vernetzen und Hilfe zu suchen.

*„Wir haben ein Patenkind, der wohnt seit zwei Jahren bei uns. Ich haben ihn vor 3 Jahren als er 15 war kennengelernt und diese Patenschaftsnachschulung haben wir erst später gemacht, weil irgendwann habe ich mich schon sehr allein gefühlt. Irgendwelche Netzwerke sind gut.“*

*„Jemanden Neuen würde ich vorschlagen, viel zu lesen, zum Beispiel über Afghanistan, und sich mit jemandem, der das schon macht, oder in der neuen Gruppe zu vernetzen.“*

Es ist hilfreich, sich mit anderen Pat*innen auszutauschen, zum Beispiel bei Stammtischen.

*„Ich habe ein paar Gespräche mit einem Projektleiter geführt, als ich gemerkt habe, das geht so nicht.“*

*„Beim Thema Abschiebung und Asyl war ich überfordert. Mittlerweile kenne ich ein paar Leute und ich kenne bei diesen rechtlichen Sachen ein bisschen den Hintergrund. Aber wenn man mittendrin ist, gerade das erste Mal, da muss man schon Ruhe bewahren und es ist schwierig, weil du kannst nicht sagen: ‚Das wird schon!‘“*

*„Bei der ersten Patenschaft habe ich ein Supervisionsgespräch in Anspruch genommen, als die Familie nachgekommen ist. Und das war dann eine Situation, wo ich mir gedacht habe, wie machen wir jetzt weiter.“*

Ein Austausch mit verschiedenen Expert*innen ist empfehlenswert und hilfreich.

Für Pat*innen gibt es verschiedene Wege Hilfe zu suchen und sich zu vernezten.

**Pat*innen-Treffen**

**Projektleitung**

können Tipps geben und
Kontakt zu Expert*innen herstellen.

**Supervisor*innen**





**Rechtsberatung**



**?**

**Selbststudium**

- Bücher über die verschiedenen Herkunftsländer oder wie Helfer*innen Kinder mit traumatische Programme unterstützen können
- Kurse oder Themenabende für Helfer*innen



# 3. Übersicht der Ratschläge

## Psychische Unterstützung

*„Es ist einfach sehr schwierig für ihn, nicht immer perfekt zu sein. Nicht immer das absolute Vorzeige-Rolemodel, wie eine Schaufensterpuppe, und wenn er traurig ist, dann meldet er sich nicht, weil er will mich nicht belasten.“*

*„Er hatte auch ziemlich psychischen Stress und teilweise so Phasen, wo es ihm nicht gut ging. Ich war dann da, um ein bisschen herauszukommen, ein bisschen zu lachen, ein bisschen Spaß zu haben, und etwas zu unternehmen.“*

*Der Jüngere hat psychische Probleme, die jetzt nicht in Psychosen enden, sondern eher in Ausrastern. Da haben wir versucht, das Angebot zu machen, dass er eine Therapie macht. Das will er nicht.*




Durch die Erlebnisse vor, während und nach der Flucht leiden die Jugendlichen oft an einer post-traumatische Belastung. Psychische Probleme sind jedoch mit Stigma behaftet und viele Jugendliche blocken Unterstützung von Psycholog*innen ab.
Als Helfer*in kann man die Jugendlichen psychosozial unterstützen. Jedoch ist sehr wichtig seine Kompetenzen und Grenzen zu kennen und auf exterene professionelle Hilfe hinzuweisen und in Anspruch zu nehmen.

## Signale für psychische Probleme lesen und darüber reden

**Versuche mitzudenken:**
Für viele ist es schwer, Dinge konkret zu benennen. Wenn Jugendliche körperliche Dinge äußern, kann das auch Ausdruck eines psychischen Problems sein.

*„Ein Patenkind hat gesaget, der Kopf ist kaputt und er verliert leicht die Geduld. Der andere hat erzählt, dass er sich geprügelt hat. Dann wusste ich, dass er auch schnell die Geduld verliert.“*

Mögliche Zeichen und Beschreibung der Jugendlichen von psychischen Problemen:

Bauchweh Geduld verlieren Konzentrationsschwierigkeiten
Sorgen Stress Albträume
Schmerzen haben Schlafprobleme kaputter Kopf
einen schlechten Tag haben

**Schaue genau hin:**
Achte auf die Wortwahl, den Tonfall, Körpersprache, Stimmungs- und Entscheidungsschwankungen und äußerliche Veränderungen

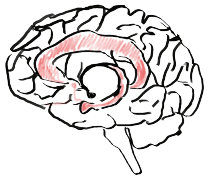
*„Der Erste ist teilweise untergetaucht und verschwunden, wenn es ihm schlecht ging. Das ist auch eine Sache von Scham. Er wollte immer ein starker Mann sein.“*





*„Wir haben jetzt einen gewissen Code, weil er mir nicht sagen kann, wenn er traurig ist. Ich spüre das schon, wenn er sich längere Zeit nicht meldet. Dann schreibe ich ihm: ‚Magst du Baby halten?' Wenn er dann sagt: ‚Ja', dann weiß ich, er ist traurig, und dann finden wir auch irgendwie einen Zugang, um darüber zu sprechen."*

*„Uns hat schon geholfen, der Biologieunterricht in der Schule, wo ich mit ihm gelernt habe. Wenn ich Dinge benennen kann, dann ist das der erste Schritt, um über Sachen zu reden "*



Man kann über indirekte Wege über psychische Probleme reden. Dennoch ist es wichtig, Dinge direkt anzupsrechen, zum Beispiel über die Möglichkeit eine Therapie zu machen und dass psychische Probleme uns alle betreffen.

**Was passiert bei Stress im Gehirn?**

Im Gehirn gibt es den Hippocampus, die Bibliothekarin. Sie kennt die Uhrzeit und Datum, aber ist manchmal nicht so schnell.
Dann gibt es den Bereich Amygdala, der Wachman, der Alarm schlägt. Manchmal macht er so viel Krach, dass er die Informationen blockiert zum Hippocampus zu kommen. Das heißt, man muss ganz langsam die Information erneut verarbeiten, damit der Wachmann die Information zum Hippocampus bringen kann ohne stecken zu bleiben.



## Psychosoziale Unterstützung im Alltag

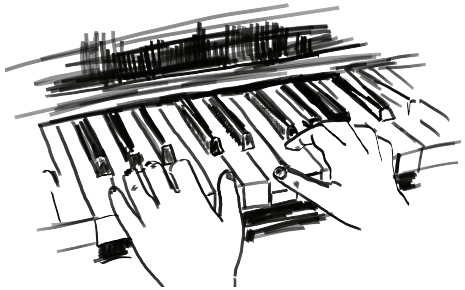
*„Im Sommer haben wir am Samstag Ausflüge gemacht, um zu verhindern, dass er den ganzen Tag verschläft, weil er das mit der Struktur noch nicht selbst hinbekommt. Wir haben ihn damit unterstützt, indem wir gemeinsam was unternehmen und er aufstehen muss. Dann ist er am Abend müde.“*

*„Eine dieser niederschwelligen Sachen, die wir machen, ist ein bisschen Struktur reinbringen. Vor allem die Ferien, die waren jetzt wirklich schlecht für ihn. Er hat dann einen Kurs gemacht.“*



*„Rhythmus hilft. Die Schule erlaubt leider, sich nachmittags noch einmal hinzulegen und da ruscht der Rhythmus.“*

*„Wenn ich dann frage: ‚Kannst du etwas für mich machen?‘ Dann freut er sich, dass er was zurückgeben kann. Ich glaube, er mag es nicht, immer der Flüchtling zu sein, um den man sich kümmert.“*



*„Ihm fehlt am Zeigefinger das oberste Glied aufgrund eines Arbeitsunfalls. Er hat ein paar Mal gesagt, dass er da gerne eine Prothese hätte. Vielleicht spielt bei dem Finger auch Scham eine gewisse Rolle, weil er das wirklich auch immer versteckt. Und jetzt durch dieses Klavierspielen lernt er, dass er damit auch spielen kann, dass er den auch nutzt. Ich hoffe, das hilft.“*



- **Guter Schlaf** für das allgemeine Wohlbefinden und die psychische Gesundheit

- **Mit Kursen und Aktivitäten Struktur im Alltag schaffen und verhindern, dass die Jugendlichen sich nachmittags hinlegen.** Routine und Struktur helfen, mit der unsicheren Situation umzugehen und besser zu schlafen.

- **Aktivitäten tagsüber planen.** Sport und Bewegung hilfen gegen Stress und für besseren Schlaf. Man könnte zum Beispiel regelmäßig zusammen Sport machen oder spazieren gehen. Aktivitäten, die man gut kann, steigern auch den Selbstwert.

- **Tipps zur Schlafhygiene geben.** Zum Beispiel vor dem Schlafengehen kein Sport, keine scharfen Speisen, und kein Koffein, damit der Körper herunterfahren kann.

- **Angebote machen, was die Jugendlichen für einen tun können.** Anderen zu helfen steigert das Wohlbefinden und Zurückgeben macht Freude.

Oft sind für die Jugendlichen körperliche Schmerzen und praktische Lösungsansätze zugänglicher. Es gibt verschiedene Resourcen, die erklären wie Helfer*innen bei psychischen Problemen unterstützen können. Deine Organisation und andere Pat*innen kennen wahrscheinlich einige.

*„Ich gebe Ratschläge. Ich sage, das wäre gut. Wenn du das nicht machst, ist es deine Entscheidung.“*

*„Ich versuche sie irgendwie zu animieren, zum Beispiel ‚Du musst etwas essen. Geh und mach dir etwas!‘“*

*„Ich bin keine Psychotherapeutin. Ich kann wohl mit ihm einfach da sitzen und reden.“*

Beispiele wie man als Pat*in bei psychischen Schwierigkeiten helfen kann:

- Eigene Beobachtungen ansprechen
- Zuhören
- Helfen Gefühle benennen zu können
- Mut zusprechen
- Zeigen, dass man an das Patenkind glaubt
- Professionelle Hilfe suchen

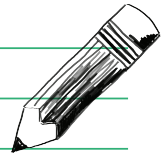


Überlege dir, was deine Kompetenzen im Bereich „Psychische Gesundheit“ sind (z. Bsp. Aktives Zuhören):

## Selbstfürsorge für Helfer*innen

Du kannst nur helfen, wenn es dir selber gut geht.

Überlege dir, was sind Aktivitäten, die du für dein Wohlbefinden und zur Selbstfürsorge machst (z.Bsp. Yoga, Spazieren gehen, Stricken, Musik):



Gerade bei psychischen Problemen ist das Thema „Grenzen Setzen“ um so wichtiger, aber auch schwieriger. Achte darauf, wie es dir geht, und sprich mit deiner Programmleitung, wenn du bemerkst, dass es dir nicht gut geht oder du Hilfe bei den psychischen Schwierigkeiten von deinem Patenkind brauchst.

## STUDY 3: Design Artifacts Produced at the Workshops

See description of mind maps in Table 8.4, storyboards in Table 8.5, paper prototypes in 8.6.




Figure 19: STUDY 3-WS1: Mind maps showing activities and things that help to sleep and feel better.




Figure 20: STUDY 3-WS2: Mind maps showing activities and things that help to sleep and feel better.




Figure 21: Mind maps showing ideas for company name and slogans. #1 and #2: STUDY 3-WS1; #3, #4, and #5: STUDY 3-WS2




Figure 22: Figure documenting activity 1.3 from STUDY 3-WS1 – Screenshots of apps annotated with post-it notes showing negative and positive aspects by team 1.

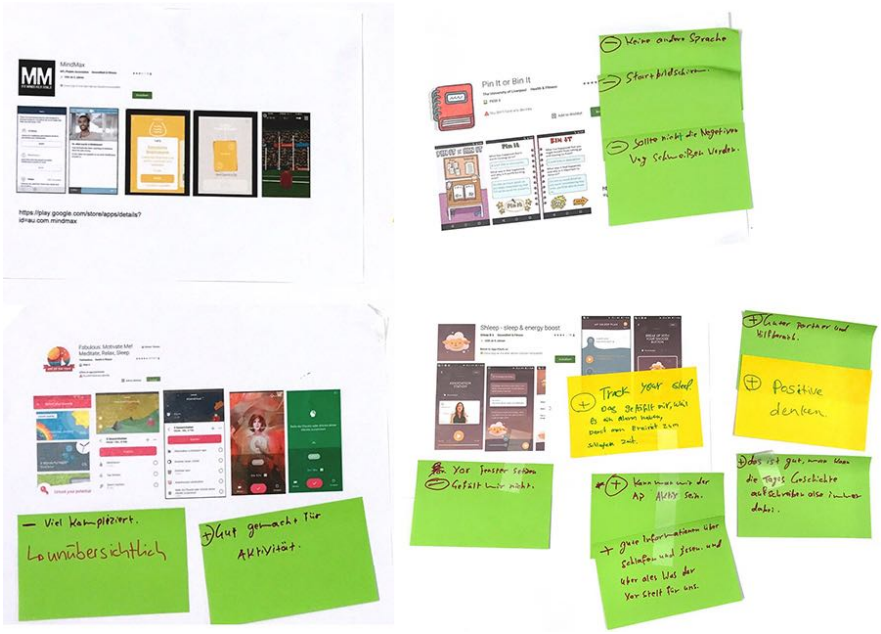



Figure 23: Figure documenting activity 1.3 from STUDY 3-WS1 – Screenshots of apps annotated with post-it notes showing negative and positive aspects by team 2.

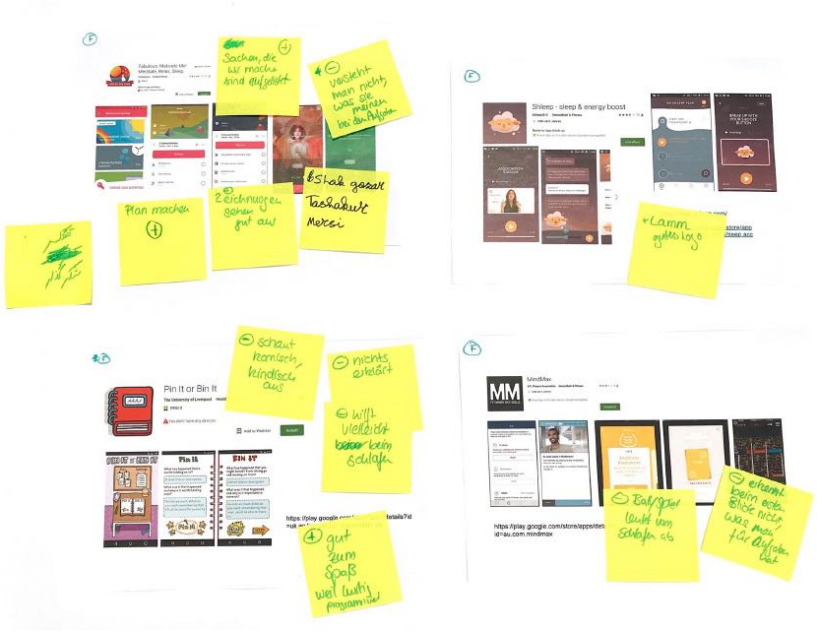



Figure 24: Figure documenting activity 1.3 from STUDY 3-WS2 – Screenshots of apps annotated with post-it notes showing negative and positive aspects by team 1.

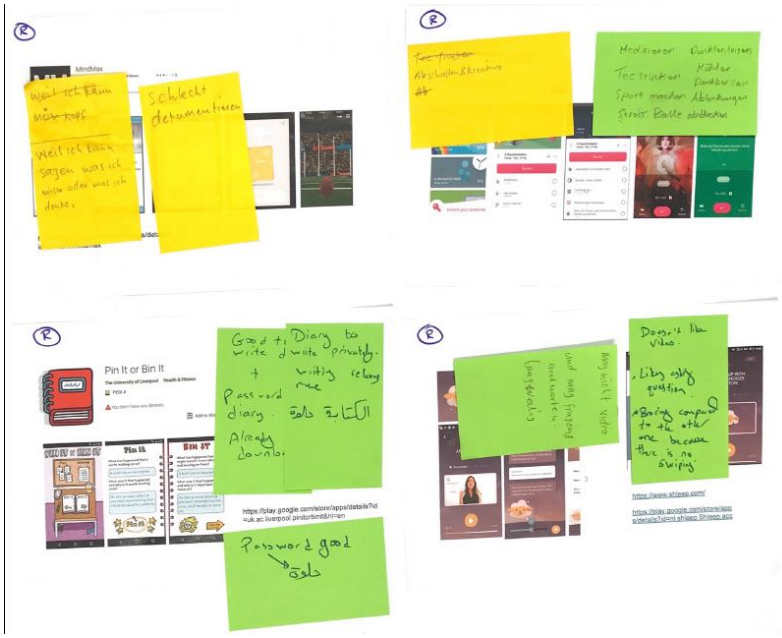



Figure 25: Figure documenting activity 1.3 from STUDY 3-WS2 – Screenshots of apps annotated with post-it notes showing negative and positive aspects by team 2.

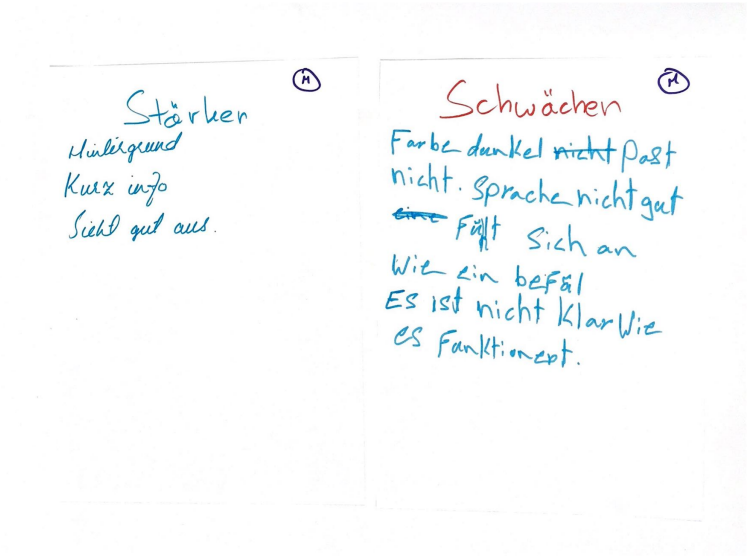



Figure 26: Figure documenting activity 1.3 from STUDY 3-WS2 – Post-it notes showing negative and positive aspects by team 3.




Figure 27: Mind map of STUDY 3-WS1 showing characteristics of potential personas, places, times, barriers, and facilitators of using the app.




Figure 28: Mind map of STUDY 3-WS2 showing potential places, times, barriers, and facilitators of using the app.




Figure 29: Pictures of participants' notebooks (STUDY 3-WS2).

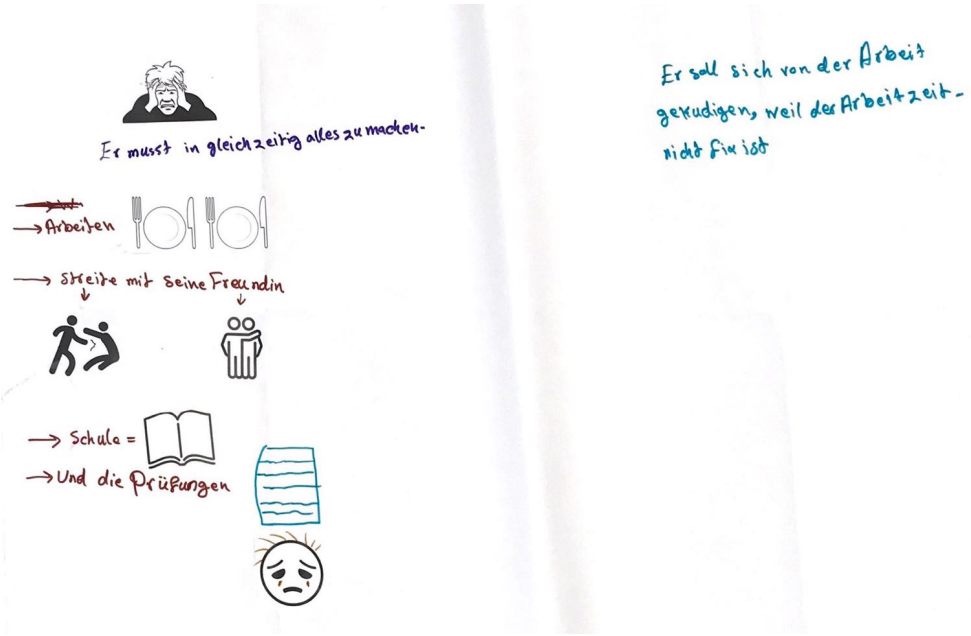



Figure 30: Storyboard #1 of STUDY 3-WS1.




Figure 31: Storyboard #5 of STUDY 3-WS1.

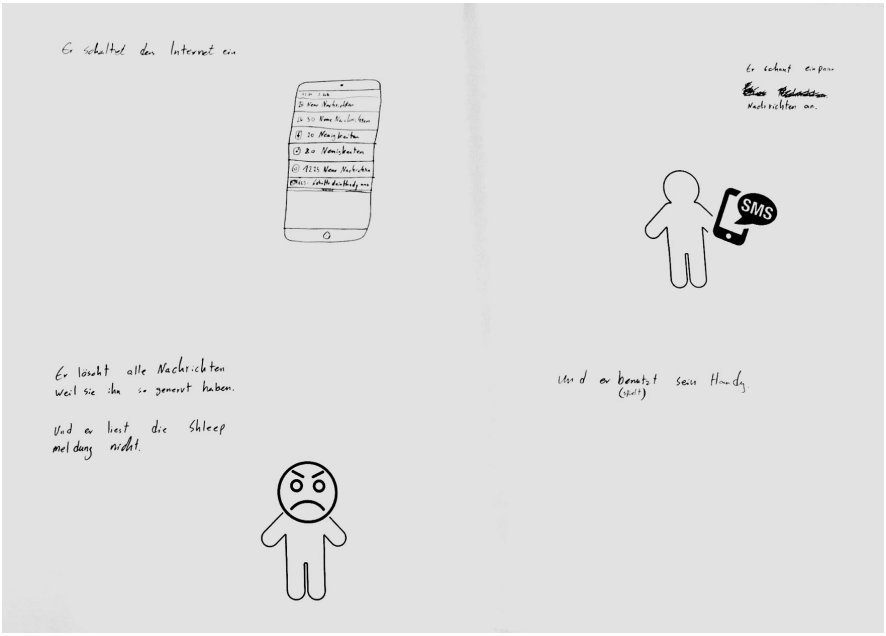



Figure 32: Storyboard #2 of STUDY 3-WS1.

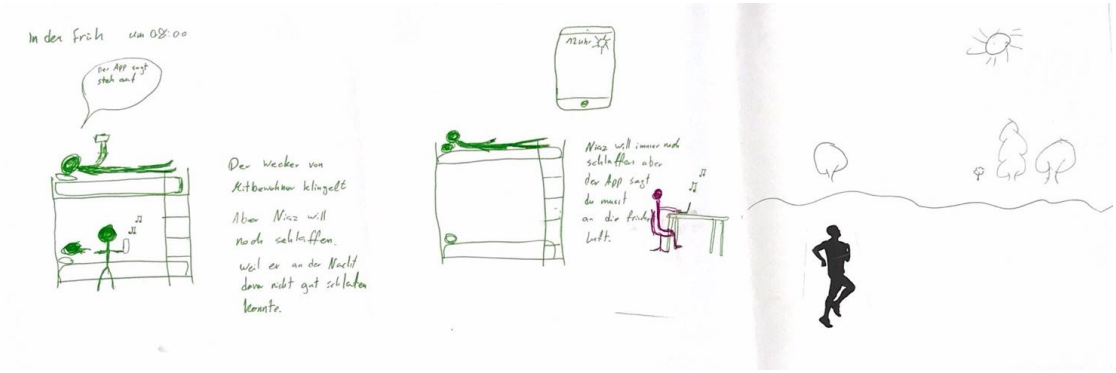



Figure 33: Storyboard #6 of STUDY 3-WS1.



Figure 34: Storyboard #3 of STUDY 3-WS1.

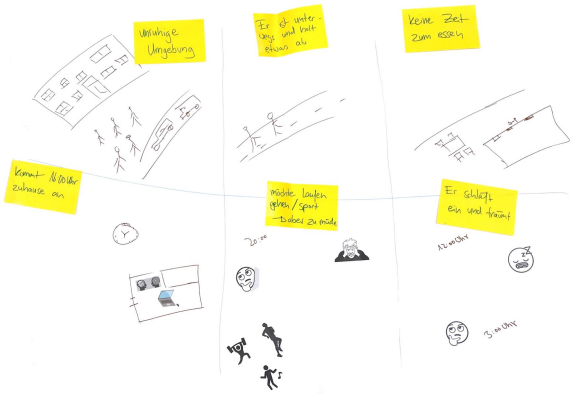


Figure 35: Storyboard #4 of STUDY 3-WS1.



Figure 36: Storyboard #7 of STUDY 3-WS1.

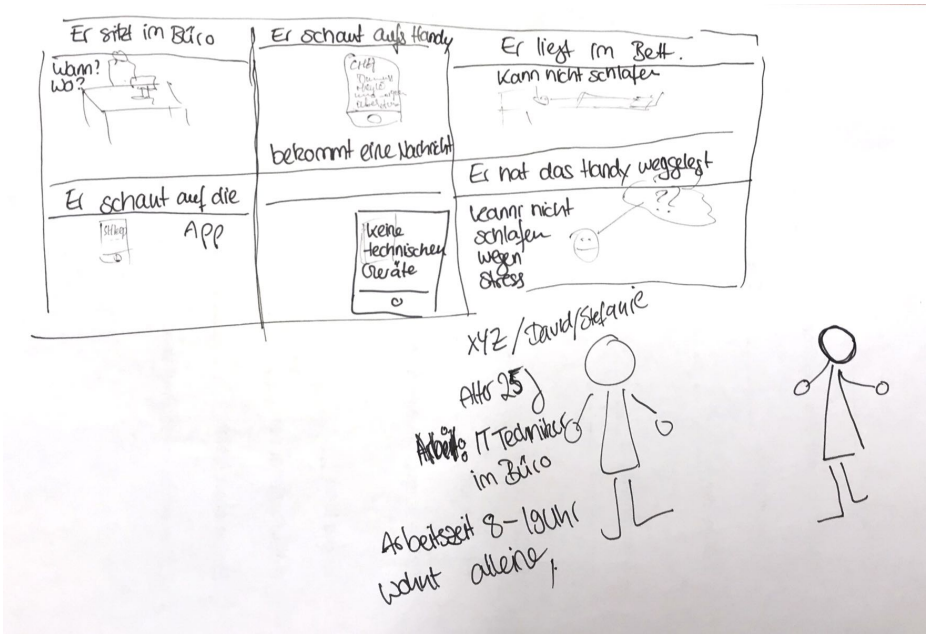



Figure 37: Storyboard #1 of STUDY 3-WS2.

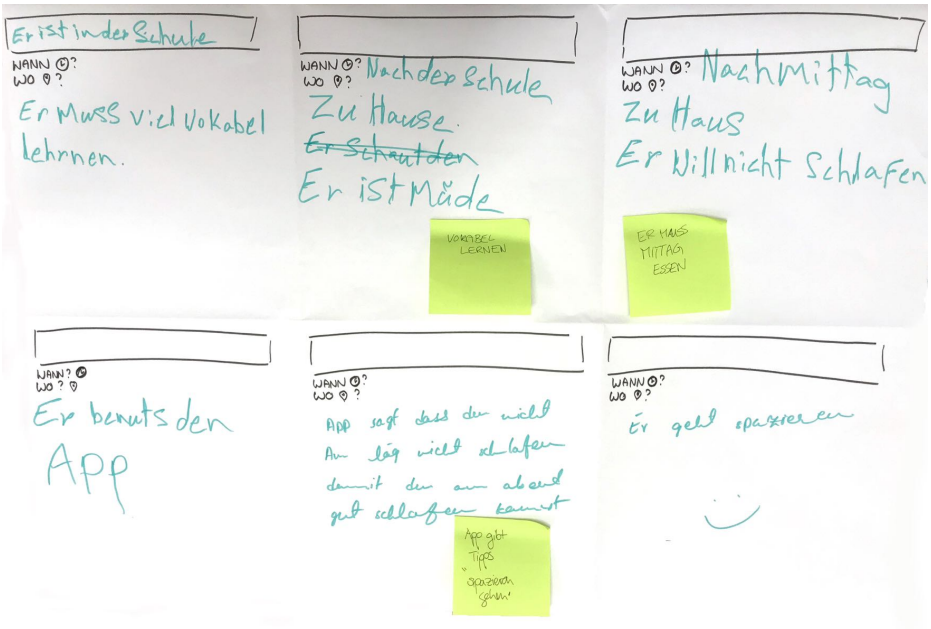



Figure 38: Storyboard #4 of STUDY 3-WS2.

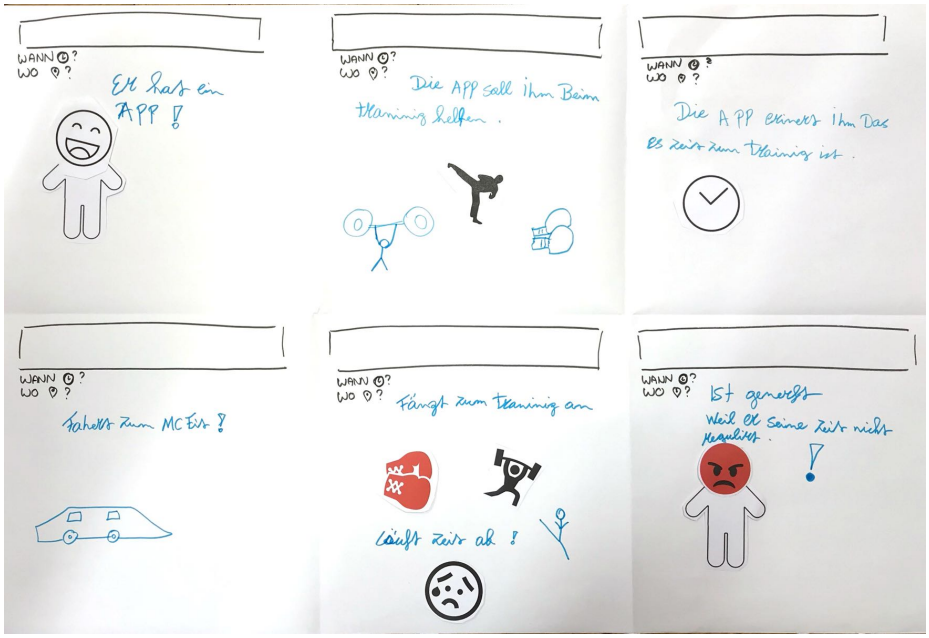



Figure 39: Storyboard #2 of STUDY 3-WS2.

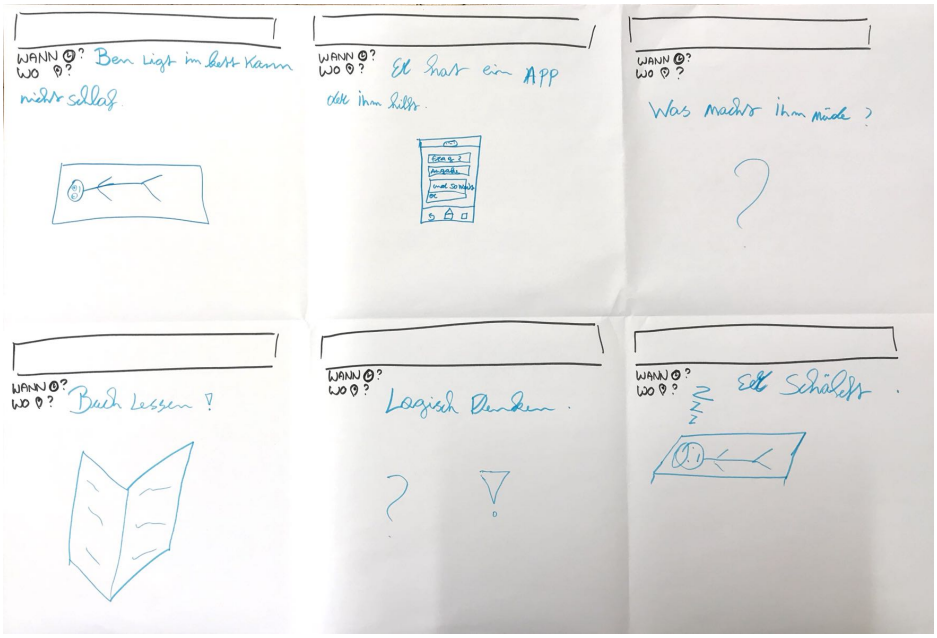



Figure 40: Storyboard #5 of STUDY 3-WS2.

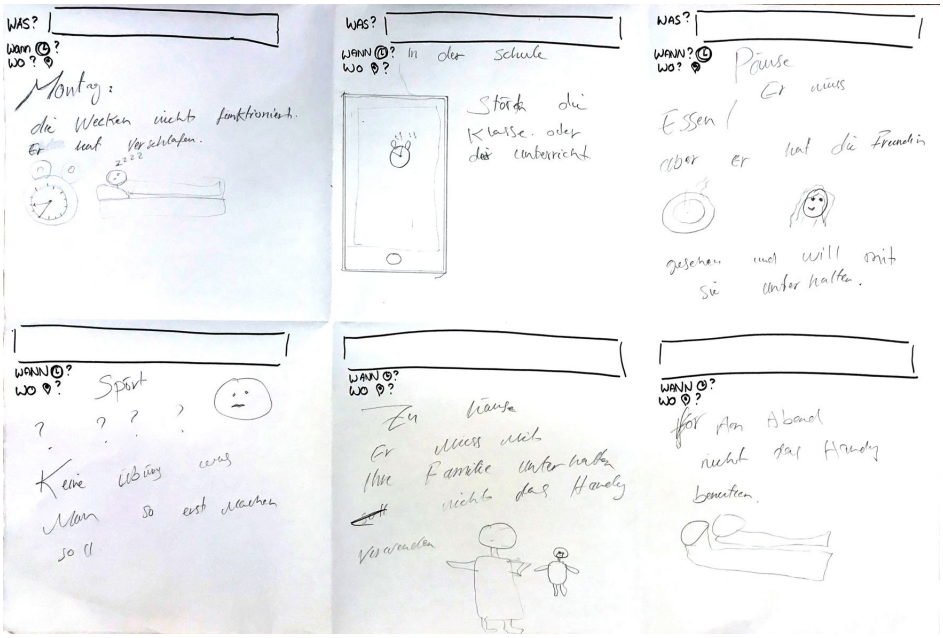



Figure 41: Storyboard #3 of STUDY 3-WS2.




Figure 42: Storyboard #6 of STUDY 3-WS3.




Figure 43: Mind map (#1) and Play Store description (#2) of final concept of team 1 in STUDY 3-WS1.




Figure 44: Final prototype of team 1 STUDY 3-WS1. Mental health app delivering stories and music helping to sleep better. Paper prototype.

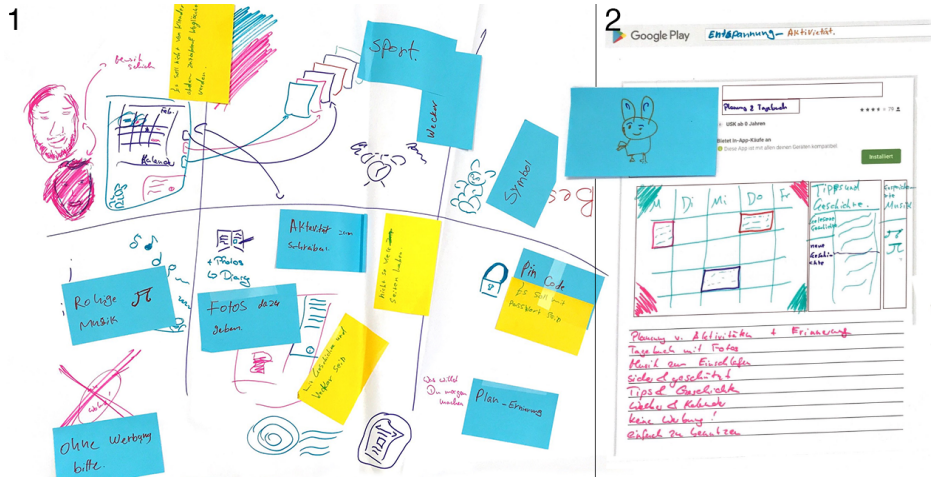



Figure 45: Mind map (#1) and Play Store description (#2) of final concept of team 2 in STUDY 3-WS1.

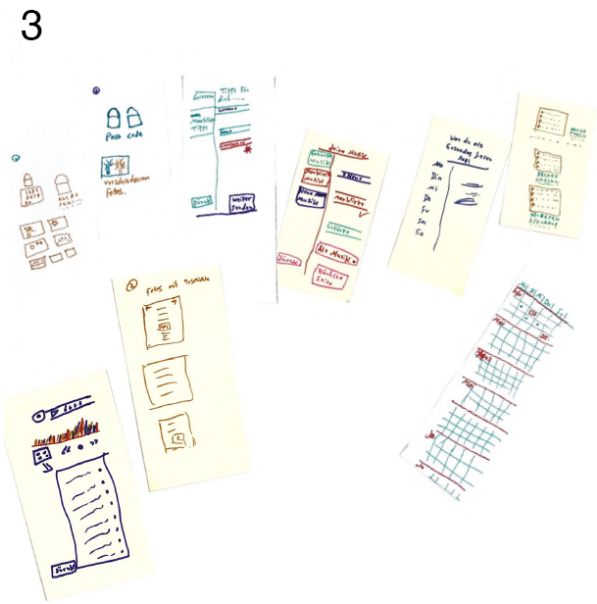



Figure 46: Final prototype by team 2 in STUDY 3-WS1 . Calendar to plan activities and collect pictures of positive activities. Paper prototype.