MENTORING OF UNIVERSITY STUDENTS: FUNCTIONS AND IMPORTANT CHARACTERISTICS

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Abstract:
The term mentoring can be understood within several paradigms: the transfer of a particular set of values, skills and norms adopted by society; an interaction of experienced and less-experienced person; or, nowadays, as a learning partnership. A mentor is a person who supports the developmental progress of an adult or non-adult mentee. The means to fulfill this task are mentoring programs but also natural mentoring, where the mentor is a person on a mentee’s social network. Among university students the specifics of the developmental period and adult learning enter into the process of the mentoring relationship. The requirements of the academic environment, changes in social relationships and achieving adequate financial independence are challenges in which a mentoring relationship can be applied. At the same time the participants of the mentoring relationship is affected by their self-direction and their individual motivational aspects. Although the benefits of mentoring have been confirmed by research, mentoring programs are not established at universities in Slovakia.

The aim of this contribution is to examine the current state of knowledge in the field of mentoring which is reflected in current studies describing the mentoring of university students. Studies published over the last 5 years published in the English language in the Web of Knowledge database were analyzed. The method of analysis is on the border of systematic review and scope review. The terms “mentoring functions” and “university students” were selected as search terms. Ten studies met the selected criteria. The following subjects were explored: categories of mentoring functions in terms of behavioral interventions; the theoretical background socio-ecological and developmental approach; a focus on psychosocial mentoring or study/professional development; the implementation of mentoring programs or natural mentoring; and people in the role of mentor and their position in relation to university. The studies were divided into and analyzed in three areas: mentoring focused on solving study tasks, mentoring focused on practice, and mentoring focused on students with special needs.

The results of the analysis point to differences in individual areas. Mentoring focused on solving study tasks including research and academic work, theoretical concepts devoted to the type of supervision, social-ecological dimension including being part of a scientific project and two-way benefits for mentor and mentee in terms of research productivity and provision of opportunities. Mentoring focused on practice including creating an opportunity for practical experience, giving feedback to a student's work, bringing knowledge from a specific work area and a specific workplace, leading and facilitating discussions among students, and social support concerning the practice. The theoretical background led to the concept of competence, social competence, communities of learners or critical evaluation of information. Social-ecological and developmental dimension, in addition to vocational support, focused on mutually beneficial cooperation between universities and workplaces where practice took place, and connections with the professional community. Mentoring focused on students with special needs was represented by individual and group meetings with a standardized curriculum relating to study tasks, as well as the development of competencies needed for successful study. Relying on the concept of social integration and social ecology and developmental specifics, it focused on the transfer to university study.

The analysis pointed to the need to a theoretical grounding of natural and formal mentoring implemented in the university environment, specifically by means of social-psychological theories. Another finding was that the mentoring of university students in the analyzed studies focused on study / professional development. Psychosocial mentoring was not directly represented in the studies. Social-ecological functions of mentoring emphasized the interconnection of university with other institutions within the community in favor of study and practice of students. The specificity of the division into formal / natural mentoring was also shown; there were three types of mentors in the studies: mentors within mentoring programs, mentors within the study curriculum, where the student can choose them, and a natural mentor - in addition to formal mentoring. Among the preferred characteristics of mentors were the terms: interest, support, dialogue partner, availability, activity, leadership, and resiliency.

The study points out the specifics of mentoring of university students, and offers ideas for further research as well as the creation and verification of mentoring programs, such as mentoring in the context of learning and vocational training, mentoring.
provided by faculty members to students, or mentors in practice, theoretical background supporting mutual learning, and emphasis on the natural and psychosocial components of mentoring relationship. The theoretical foundations of mentoring include, in addition to attachment theory, social learning theory, planned behavior, and constructivism. Social constructivism related to learning in social groups corresponds to the paradigm of mentoring as a means of socialization and also play a role in clarifying the socio-ecological dimension to mentoring.

The limits of the research include the number of analyzed studies; the effectiveness of mentoring in analyzed studies was not taken into account. Another systematic review is needed for confirmation and completion of the results. Furthermore, future research should focus on the narrower concept of mentoring, different operationalizations of this term „mentoring” according to specific definitions, as well as other, organizational and socio-demographic aspects of the mentoring relationship.

**Key words:** Mentoring functions. University students. Theoretical background of mentoring. Social-ecological approach. Formal/natural mentoring.

**Definition of the term mentor, a theoretical explanation of mentoring, and identified benefits**

Definitions of mentoring are based on several paradigms. Firstly, the oldest explanation of the word “mentor” comes from ancient Greek mythology. „Mentor“ was the name of the educator to whom Odysseus entrusted the care of his son Telemachus (Dutton, 2003). Therefore, mentoring was initially perceived and defined as a transfer of a particular set of values, skills and norms adopted by society. DuBois & Karcher (2005) and Rhodes (2005) define mentoring as a strategy for positive youth development, where the word „positive“ can also be explained as adaptive, leading to engagement in satisfactory relationships, beneficial activities and fulfilling developmental tasks. A second paradigm is associated with management issues (Woodd, 1997). It represents an interaction of an experienced and a less-experienced person, or between an older and younger person (Shapiro, Haseltine, & Rowe, 1978) in favor of a life path, mainly related to career and employment. Levinson, Darrow, Levinson, and McKee (1978) saw mentoring as an effective tool for influencing commitment and self-concept. The combination of these two paradigms is reflected in mentoring programs for children and the youth. Mentoring programs are nowadays a part of the educational process at all levels of education (Fletcher & Mullen, 2012) and provide an opportunity for the youth to be emotionally supported and advised by older, non-parental adults (Karcher et al., 2006; Raposa et al., 2019). Although the young benefits from the mutual relationship, it is still asymmetrical (Jacobi, 1991; Keller, & Pryce, 2010; Rhodes, 2005); mutuality of a mentoring relationship brings an opportunity for social learning for mentor and mentee alike, and also fulfills the need of generativity, which is according to E. Erikson (Erikson & Erikson, 1998) one of the important developmental tasks of adulthood.

This shift in the current paradigm, dating back to around the 1980s, is a change of perspective from one-way to a reciprocal process. Where previous understanding had pointed to a mentored person solely as a receiver of knowledge (Zachary, 2000), current understanding of mentoring tends to a „learning partnership“ (Alerd, Garvey, & Smith, 2000; Lankau & Scandura, 2002; Zachary, 2000). „Mentors and mentees, or protégés (now) learn from and teach each other“ (Foster et al., 2007, p. 2). This paradigm reframes mentoring as a type of developmental relationship characterized by reciprocal learning and focuses on goal attainment. Morisson (in Morrison & Vancouver, 2000), in connection with socialization, describes three types of information that is provided by mentoring: technical – how to perform some behaviour, achieve a goal or accomplish a task; referent – the content of a specific role and interaction with the environment; and normative – socially expected behavior and attitudes. These three aspects can be understood in a psychosocial context as well as in the context of study and employment.

A common element of the three described paradigms is the targeting on development. A mentor is a person who supports the developmental progress. Along with parents, teachers, educators, trainers and coaches, mentors play the role of a significant adult (Galbo, 1986). Several positive consequences of the mentoring relationship were found in the areas of social-emotional development, academic and vocational functioning (Eby et al., 2008; Van Dam et al., 2018; Hagler & Rhodes, 2018), social-personality characteristics as determination, goal setting, self-efficacy (Moore, 2018) and risky behavior (Beier et al., 2000; Berinšterová, Magdová & Bozogáňová, 2019). Metaanalysis from 2019 (Raposa et al., 2019) provides support for mentoring programs for adolescents, although their effect was event though the modest. Among university students the mentoring programs were confirmed as a way to
improve integration at college, the academic performance and adjustment, and retention, and success of college students (Jain, Chaudhary, & Jain, 2016; Johnson, Rose, & Schlosser, 2007; Yomtov et al., 2017). Although research shows many variables that have been positively influenced by mentoring, they are not sufficiently reflected in the theoretical background of mentoring programs.

Psychological explanations of mentoring relationships are most often based on the theory of attachment and the theory of social learning (Van Dam et al., 2018). The mentor acts as a secondary attachment person providing a different example of a positive close relationship (Fraley et al., 2011; Rhodes et al., 2006; Soucy & Larose, 2000; Larose, Bernier, & Soucy, 2005). These positive mentoring relationship experiences may be generalized to other relationships (Goldner & Mayseless, 2009). Mentors serve also as a role model and have a responsibility to behave in a manner that will benefit the mentee (Harvey et al., 2010; Zagumny, 1993). Learning experiences also provide information about self-efficacy: personal performance/mastery experiences, persuasion (social encouragement) and physiological/affective states (positive/negative emotions) linked with performing certain tasks (Ahn, Bong, & Kim, 2017; Bandura, 1977; Lent & Brown, 2013; Lent et al., 2017). This interpretation of theoretical concepts corresponds to the understanding of mentoring as an asymmetrical relationship between a more and a less-experienced person. On the other hand, the relationship between the mentor and the mentee provides an opportunity for social learning, personal mastery support and positive affective states for both participants. Another theory in which more reference is made to the reciprocity of the relationship between the mentor and the mentee is the theory of planned behavior (Ajzen, 1991).  Barnard-Brak, Burley, and Crooks (2010) in their research found that mentoring behavior were predicted from attitudes about mentoring, beliefs about mentoring, subjective norms, and perceived control over the mentoring situation. A mentor and mentored person, with their beliefs, attitudes, norms and perceived control, influence the course, effectiveness and impact of the mentoring relationship. Although the asymmetric understanding of mentoring is particularly valid, its course and form should be adapted to the specifics of the developmental period, and the social environment among late adolescents and university students.

Mentoring of university students

C. Smith (2017) claims that the majority of colleges and universities offer some type of mentoring. This fact does not seem to apply to universities in Slovakia. There are no mentoring programs within the universities, and mentoring programs in Slovakia have little research support. Nevertheless, it is possible that university students in Slovakia have the experience of informal, natural mentoring even within the university. Natural mentoring refers to a relationship with a person in an individual's social network who has the function of a mentor with a special empowering role (Allen, Eby, & Lentz, 2006; Goldner & Myseless, 2009). In contrast, formal mentoring takes place through mentoring programs and carries elements of institutionality. Both approaches have their place within the university and their characteristics partially overlap. Natural mentoring in an university environment at least partially carries elements of institutionality.

Mentoring of college students is specific and different from mentoring of adolescents and adults. These differences are linked to the development period. Emerging adulthood or post-adolescence has its typical features. A common sign is change, which includes achieving economic and emotional independence from the family (Zarrett & Eccles, 2006). Many university students experience increased economic demands and social ones through entering new environments and social networks (Stallman, 2010). In the case of university students, the requirements of the academic environment are added to these developmental challenges. Mentoring is considered an effective practice for providing support for students reduce psychological distress, facilitating transition and student success (Bernier, Larose, & Soucy, 2005; Grossman & Rhodes, 2002; Harmon, 2006; Hurd et al., 2014; Hurd, Tan, & Loeb, 2016). At the same time, with emerging adulthood, the following principles of adult learning need to be applied (Knowles, in Wu et al., 2016): self-directedness, an association of readiness to learn and developmental tasks, and learning effectiveness linked to internal, rather than external, motivation. The choice and course of the mentoring relationship is thus more dependent on the mentee than on the mentor. Motives and values may or may not be inclined to the learning process within the mentoring relationship and the functions it should fulfill.
Mentoring functions

Mentoring functions are “those aspects of a developmental relationship that enhance both individuals’ growth and advancement” (Kram, 1983, p. 622). Authors describe mentoring functions on several levels. We suggest the following:

The first level for describing mentoring functions is through simple nouns and verbal nouns, that express the type of behavioral interventions to a protegé. Mentoring functions were expressed through nouns and verbal nouns as acceptance, closeness, trust, intimacy, friendship, reliability, trustworthiness, confirmation, supporting, advocacy, motivating, inspiring, empowering and developing (Fowler & O’Gorman, 2005; Ragins & McFarlin, 1990; Rhodes et al., 2005; Sosik & Godshalk, 2000).

The second level of mentoring function description is integrating psychological and social-psychological theories and approaches. In this level, the mentoring function is expressed as role modeling, help to cope with problems (Rhodes et al., 2005), facilitation of cognitive transfer, learning facilitation, (Fowler & O’Gorman, 2005), assuring social integration (Castro & Scandura, 2004; Mir & Pinnington, 2014; Pope, 2002) and absence of negative emotions (Rhodes et al., 2005).

The third level is associated with the social ecology (Bronfenbrenner, 1994) of the protegé, and includes multiple components of his/her environment with the impact of solving developmental tasks. One of the most commonly used models of mentoring functions is the model of MFQ-9 (Castro & Scandura, 2004) that measures vocational/career development support and psychosocial support and role modeling. Other studies describe mentoring as nurturing the mentee’s social and psychological development, serving as a role model, and providing support for goal setting and future planning (Miller, Salmela & Kerr, 2002; Roberts, 2000).

All three levels of functionality have their place in defining mentoring functions. Behavioral interventions can be rooted in theoretical contexts, and in defining the theory, but the socio-ecological dimension in which they apply and which contributes to the growth and development of the individual should not be neglected.

Aim and procedure

The aim of the study was to explore the current state of knowledge in the field of mentoring functions of university students taking into account the proposed levels of mentoring functions. The position of the mentor in relation to the university, their desirable characteristics and the nature of the mentoring relationship was also explored. The method of analysis is on the border of systematic review and scope review as the studies were analyzed according to the chosen criteria whereas the effectiveness of specific mentoring approach has not been taken into account. (Munn et al., 2018). Studies type “articles” in the database “Web of Science” in the English language over the last 5 years (2016-2020) have been explored. “Mentoring functions” and “university students” were entered as keywords. The keywords selection matched the goals of the contribution and also, it is related to the focus of most of the research on mentoring in higher education on n undergraduate and graduate students (Erickson, in Lundsford et al., 2017). The studies were evaluated from the following points of view:

- categories of mentoring functions – behavioral interventions, functions associated to theoretical background, functions associated to a social-ecological and developmental approach
- focus on psychosocial mentoring or study/professional development focused on mentoring
- implementation of mentoring programs, or natural mentoring
- persons in the role of mentor and their position in relation to a university.

Results

Table 1 represents the results (See Appendix). The numbers in parentheses indicate the references in the table. Ten studies met the criteria. Studies described quantitative and qualitative researches. The articles described the mentoring of students of various fields of study: Natural Sciences (*1.; 3.), Humanities, (*3.), Engineering and Technological sciences (*3.; 7.), Social Sciences (*3.; 2.; 5.), Education (*4.; 6.; 3.; 8.). It is possible to divide the analyzed studies into three areas, to which mentoring functions have
been linked: (*1) mentoring focused on solving study tasks (*1.; 2.; 3.) (2) mentoring focused on practice (*4.; 5.; 6.; 7.; 8.) mentoring focused on students with special needs (*9.; 10.).

Mentoring functions

From the point of view of the categories of mentoring functions, the following were mentioned in individual areas:

Behavioral interventions of mentoring focused on solving study tasks - training of laboratory techniques and data analysis (*1.), mentoring students in their research (*2.), navigation in the academic world, informing students about scientific events, helping with publications (*3.).

Behavioral interventions of mentoring focused on practice - facilitating the group discussion; leading meetings of the learning community (*4.), provide learning experiences (*5.), support the students, taking responsibility for developing the students by giving them valuable feedback, welcome students into the school environment (*6.), provide practical knowledge and technological skills, discuss scenarios, learn the nuances of the industrial company (*7.), lead the students teaching experiences, model the learning practices (*8.).

Behavioral interventions of mentoring focused on students with special needs - tailor individual meetings schedules, individualized meeting with the students (*9.; 10.), work with students on the key competency areas (problem solving, time management and organization, social skill development, technology use, and advocacy), work with students in as many modalities as possible (*9.), lead a group meeting with a standardized curriculum (social skills; self-advocacy), hour-long individualized meetings with a student (*10.).

Theoretical concepts were least described in the analyzed studies.

Theoretical concepts of mentoring focus on solving study tasks - project versus process-oriented supervision (Boehe in *3.), research practice versus research relation-oriented supervision (Franke, Arvidsson in *3.).

Theoretical concepts of mentoring focus on practice: communities of learners’ (Wenger in *4.), competence as “the combination of skills, knowledge and attitudes, values and technical abilities that underpin safe and effective nursing practice and interventions” (NMC in *5.), social skills (*7.).

Theoretical concepts of mentoring focused on students with special needs: social integration (*9.; 10.).

Studies bring the following mentoring functions associated with social ecology and developmental approach:

Social ecology approach mentoring focus on solving study tasks - being a part of project with a significant impact on the scientific field (*1.), two-way benefits in terms of research productivity and provision of opportunities (*2.).

Social ecology approach of mentoring focused on practice - to prepare students to function effectively within a work environment (*5.), distributed support’ involves acceptance of joint, collaborative responsibility for initial teacher development by a number of partners including the teachers and university, dialogical engagement (Mukeredzi in *6.), mediation of professional community (*4.), community orientation, contact with industry partners (*7.).

Social ecology approach of mentoring focused on students with special needs - transitional support for students entering a university, opportunities to engage with diverse set of peers (*10.).

The type of mentoring and characteristics of mentor

The assessment of the use of formal or natural mentoring was not unambiguous in this case. Two studies described a mentoring program (*1.; 4.) which is considered as formal mentoring. Two studies reported natural mentoring that occurs alongside a formal one (*6.; 7.) – where an experienced person who met
during the internship and who was not assigned to them but met the characteristics of natural mentoring. The remaining studies mention mentors that the students met as a part of the curriculum and they had an opportunity to choose them.

In study-oriented mentoring, the mentors were faculty members, researchers, post-doctoral scientists and PhD. supervisors, but also graduate students (*1.; 2.; 3.). Preferred characteristics were reported „being interested in and supportive“ (*2.), „being dialogue partners and research-practice orientation“ (*3.).

In practice-oriented mentoring, mentors were representatives of the university (*4.) and also experienced professionals from the field of study (*5.; 6.; 7.; 8.). Preferred characteristics were: availability, being calm, friendly, engagement and providing adequate support (*8.), ability to assess practice-based situations and make decisions (*5.). Mentor’s encouragement to be active and discussing authentic issues in a dialogical environment. (*4.)

Mentors of students with special needs were peers, undergraduate students, MA students, and Ph.D. students (*9.; 10.). Favorable characteristics were leadership and resiliency, spending time with mentee and sense of confidence (*9.).

Discussion

The aim of the study was to explore the current state of knowledge in the field of mentoring among university students, taking into account the proposed levels of mentoring functions. The position of the mentor in relation to their university, their desirable characteristics and the nature of the mentoring relationship was also explored. The results pointed to several facts. Firstly, the research of mentoring of university students has received less attention in recent years. Only 10 studies met the specified search criteria. The studies focused on three areas: (1) mentoring focused on solving study tasks; (2) mentoring focused on practice and (3) mentoring focused on students with special needs. This division is partly in line with previous studies, where part of the mentoring model of university students is (a) emotional support, (b) academic and goal-setting support, (c) career and subject matter support, and (d) role modeling (Castro, & Scandura, 2004; Nora & Crisp, 2007). Mentoring focused on students with special needs could be an extension of previous models. Research supports the importance of mentoring relationships for students with special needs (Patrick & Wessel, 2013; Shpigelman, Weiss, & Reiter, 2009). The identified areas of mentoring could form the basis for a new model of mentoring for university students. However, a further systematic review is needed to confirm these results.

Another finding of the study was that the mentoring of university students in the analyzed studies focused on study / professional development. Despite the fact that psychosocial support is considered one of the main functions of mentoring, with positive consequences for adolescents, but also support for employees (Castro & Scandura 2004; Graham & Jefferson, 2019), this approach was not represented in the analyzed studies. However, as analyzed studies show, mentoring of university students has specific goals in terms of study and vocational training. Psychosocial mentoring is no less important in terms of promoting the well-being of students (Hayes & Balcazar, 2008). Social integration (Tinto, 1993) as a condition for successful transition to a university (Pascarella & Terenzini, 2005) could be a goal of mentoring support not only for students with special needs, but for all who are at the beginning of higher education.

As regards the categories of mentoring functions, different mentoring functions corresponded to each of the identified areas. Mentoring focused on solving study tasks including research and academic work, theoretical concepts devoted to the type of supervision, a social-ecological dimension including being a part of a scientific project, and two-way benefits for mentor and mentee. Mentoring focused on practice including creating an opportunity for practical experience, giving feedback to a student's work, bringing knowledge from a specific work area and a specific workplace, leading and facilitating discussions among students, and social support concerning the practice. The theoretical background led to the concept of competence, social competence or critical evaluation of information. The social-ecological and developmental dimension in addition to vocational support focused on mutually beneficial cooperation between universities and workplaces where practice took place, and connections with the
professional community. Mentoring focused on students with special needs was represented by individual and group meetings focusing on study tasks as well as the development of competencies needed for successful study. Relying on the concept of social integration, and in terms of social ecology and developmental specifics, it focused on the transfer to university study. The results could promote the creation and subsequent verification of mentoring programs. However, it must be said that this step should be preceded by the embedding of programs in socio-psychological theoretical concepts. The analyzed studies did not declare the theoretical basis of mentoring for university students. The following research should focus on the identification of theoretical concepts that can be applied in the mentoring of university students.

The mentoring was explained through the theory of attachment, the theory of social learning and the theory of planned behavior (Barnard-Brak, Burley, & Crooks, 2010; Van Dam et al., 2018). Due to the different nature of mentoring trends (psychosocial, study and work mentoring), it is necessary to verify theoretical concepts in individual areas. An example of a suitable theoretical concept with an explanatory perspective is a constructivist approach to mentoring (Shapiro, 2020). The higher level of mentoring functions was associated with a positive assessment of mentee abilities (Wang, Tomlinson, & Noe, 2010) that emphasizes „intersubjective reality” and the social relationship as the best environment for learning (Vygotsky in Van Bergen & Parsell, 2019, p. 17). Although the relativity of knowledge in constructivism is the content of discussion (Liu & Matthews, 2005; McWilliams, 2016), social constructivism related to learning in social groups corresponds to the paradigm of mentoring as a means of socialization.

A constructivist approach can also play a role in clarifying the socio-ecological dimension to mentoring. The socio-ecological approach presents the connection of the individual with the environment and the interaction with a positive or negative impact (Bronfenbrenner, 1994). Due to this effect, it is possible to achieve developmental tasks. The analyzed studies proved the importance of mentoring in connection to individual components of the student’s environment in aiding their studies and preparation for their profession. The interconnection of institutions within the community was also shown. However, the individual way of creating social constructs can explain the differences in the knowledge of individual elements of the environment as well as the person themself, and the subsequent differences in the effectiveness of the mentoring approach. An association with one’s perception of one’s own personality characteristics, the expectation of mentoring, and the effectiveness of mentoring have been confirmed by several studies (Feldman, 1999; Goldner, 2016; St-Jean & Mathieu 2015). Analyzed studies emphasize that practitioners in the role of mentors also need support in terms of understanding their role, their perception of its importance, and the necessary competencies (Gravett & Jiyane, 2019; Silbert & Verbeek, 2016). The role of the universities can also include these forms of support.

The study supports the view of the specificity of academic mentoring. Its basic division of natural / formal mentoring has a different form in this case. In the study, we pointed out four types of mentoring – mentoring within mentoring programs, mentoring within the study curriculum, where the student can choose a mentor and natural mentor in addition to formal mentoring. Mentors were chosen peers (graduate students, undergraduate students, PhD. Students), faculty members (researchers, PhD supervisors), mentors from practice (mentors from the professional community), and mentors of mentors, who provided university support. While Collier (2017) presents hierarchical and peer mentoring as effective ways of promoting college student integration and success, several studies also argue in favor of peer mentoring (Akinla, Hagan, & Akuomo, 2018; Yomtov et al., 2017), although some authors object to the ambiguity in defining it (Egege & Kutieleh, 2015). In this case, it is necessary to precisely specify the course of interaction between the mentor and the mentee with different positions (peer, faulty, member, practitioner), in favor of the creation and implementation of mentoring programs but also effective natural mentoring.

Natural mentoring as part of the developmental network of individuals, appeared to a lesser extent in analyzed studies, mainly in the area of practice-oriented mentoring. In contrast to these results, Fountain and Newcomer (2016) found that informal mentoring is equally prevalent, as are formal mentoring programs in an university environment. A supportive role for mentors in the development of an emerging adult may be represented by teachers, colleagues, friends and family (Higgins & Kram, 2001). Fruh
(2015) in her research refers to academic supporters (teachers, professors, advisors), and support in the area of values exploration, goal setting, and problem solving. In accordance with previous research (Ajzen, 1991; Barnard-Brak, Burley, & Crooks, 2010; Fountain & Newcomer, 2016) beliefs about the need and usefulness of mentoring is crucial in the context of this type of support.

Universities in Slovakia do not yet implement formal mentoring programs. Nevertheless, some of the mentoring functions have been implemented in other ways. The effectiveness of mentoring programs for university students has been associated with a successful transition to university, study performance, generativity, and altruism (Beltman & Shaeben, 2012; Hastings et al., 2015; Hillier et al., 2019; Leidenfrost et al., 2014). Fountain and Newcomer (2016) summarize the benefits of mentoring for faculties: facilitating the recruitment, retention, and advancement of faculty, socializing mentees into an academic unit’s culture, increasing collegiality and the building of relationships and networks, increasing productivity among both protégés and mentors, and promoting professional growth and career development for protégés and mentors productivity and organizational stability. The implementation of mentoring programs can result in the conceptualization of the role of the mentor from the point of view of both the mentor and the mentee.

The limits of the research include the number of analyzed studies. However, after the method of scope review was chosen (Munn et al., 2018) a relatively large amount of knowledge emerges from the small number of studies analyzed. It is not possible to generalize the results, but they could be an inspiration for further research, that can lead to systematic reviews. Further research would require a broader scope of articles registered in scientific databases. Moreover, future research should focus on the narrower concept of mentoring according to specific definitions, as well as other, organizational and socio-demographic aspects of the mentoring relationship.

The interpretation of the results is influenced by the diverse operationalization of the term “mentoring”, which is culturally conditioned. However, as mentoring is not widespread in Slovakia, the study could precede the exploration of the implementation of individual mentoring functions and the creation of mentoring programs in a university environment.
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Appendix

Table 1
Analysis of articles in terms of mentoring of university students

|   | Reference | Field of study | Mentoring function areas | Behavioral interventions | Theoretical background | Social-ecology and developmental task | Formal/Natural mentoring | Mentor | Required characteristics of the mentor |
|---|-----------|----------------|--------------------------|--------------------------|------------------------|---------------------------------------|--------------------------|--------|----------------------------------------|
| 1 | Stoeckman, Cai, & Chapman, 2019 | Biochemistry research | Behavioral interventions | Training of laboratory techniques and data analysis | - | Being a part of scientific project | Formal | graduate students, post-doctoral scientists. | - |
| 2 | Cronan, Van Liew, Stal, Marr, Patrus, Mansoor & Cronan, 2020 | Psychology | Study tasks | Mentoring students in their research | - | Two-way benefits in terms of research productivity and provision of opportunities | Formal - chosen | Faculty members, researchers | Being interested and supportive |
| 3 | Gruzdev, Terentev & Dzhafarova, 2019 | Natural sciences, Humanities, engineering and Technological sciences, Social sciences, education | Study tasks | Navigating through the academic world; Informing about scientific events; Helping with publications | Project versus process-oriented supervision; research - practice vs. research relation-oriented supervision | - | Formal - chosen | Phd supervisor | Dialogue partners, research-practice oriented |
| 4 | Rachamim & Orland-Barak, 2016 | Teachers education | Practice | Facilitating group discussion; leading meetings of the learning community | Communities of learners | Mediation of professional community | Formal | Representative of the university | Mentor’s encouragement to be active |
|   | Authors, Year | Field | Learning Experiences | Competence as a combination of skills, knowledge and attitudes, values and technical abilities that underpin safe and effective nursing practice and interventions | To prepare students to function effectively within an environment that provides front-line health care | Formal | Experienced professionals (from outside university) | Availability, engagement; ability to assess practice-based situations and make decisions |
|---|--------------|-------|----------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------|----------------------------------|--------------------------------------------------|
| 5. | Williams, 2018 | Nursing | Providing learning experiences | | | | |
| 6. | Silbert & Verbeek, 2016 | Teachers education | Practice | Supporting the students; taking responsibility for developing the students by giving them valuable feedback; welcoming students into the school environment | "Distributed support" - acceptance of collaborative responsibility for initial teacher development by a number of partners including the teachers and university; dialogical engagement | Collaboration of students, mentor teachers and university | Formal/Natural | Experienced professionals |
| 7. | Phan & Ngo, 2020 | Mechatronics Engineering | | Providing practical knowledge, technological skills and business mindsets, discussing scenarios, learning the nuances of the company | Social skills | Community oriented approach, connection with industry partners | Formal/Natural | Experienced professional from community and Industry partners |
|   | Reference                                      | Practice | Leading the students teaching experiences; supporting, modeling the learning practices | International experience with school partnerships | Experienced teachers in schools | Calm, friendly and supportive; providing adequate support |
|---|------------------------------------------------|----------|---------------------------------------------------------------------------------------|-------------------------------------------------|-------------------------------|-----------------------------------------------------------|
| 8 | Gravett & Jiyane, 2019 Teachers education       | -        | Leading the students teaching experiences; supporting, modeling the learning practices | -                                               | -                             | -                                                          |
| 9 | Rando, Huber & Oswald, 2016                     | -        | Individualized teaching with students; working with students on the key competencies; working with students in as many modalities as possible | Social integration                              | Transitional support for students with autistic disorder entering the university | Leadership, resiliency over time, coupled with input and advice, sense of confidence |
| 10| Gillespie-Lynch, Bublitz, Donachie, Wong, Brooks & D’Onofr, 2017 | -        | Leading group meetings with a standardized curriculum (social skills; self-advocacy); hour-long individualized meetings with a student | Social integration                              | Opportunities to engage with diverse peers.              | -                                                          |

* studies are assigned by a number in the table and also in the description of results