Identifying the factors affecting on interaction of faculty member: A meta-synthesis

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Abstract:

BACKGROUND: The ability to interact and communicate effectively is one of the factors affecting the performance of faculty members, which is considered one of their basic competencies. The purpose of this study was to identify the factors affecting on interaction of faculty member with student and colleague, through the synthesis of literature.

MATERIALS AND METHODS: The research method was qualitative with a meta-synthesis approach. Meta-synthesis was performed with Sandelowski and Barroso method. After the research of databases in the period 1995–2021, 259 studies were collected and finally 48 sources were selected and were included in the analysis phase. Coding method was used to analyze the data.

RESULTS: Analyzing the findings of previous researchers and synthesizing the results, 155 codes, 18 subcategories, and 6 categories were identified and validated through kappa coefficient. The categories included “emotional-cognitive factor,” “sociocultural factor,” “communication factor,” “professional factor,” “educational factors,” and “management factor.”

CONCLUSION: Based on the findings of this study and the importance of faculty members’ interactions in medical universities, it is recommended that university officials and administrators use the results of this study to provide a suitable platform for creating and strengthening these interactions through holding workshops.

Keywords:
Faculty, qualitative research, social interaction

Introduction

Faculty members are one of the main elements in higher education and universities. They are the most important factors in achieving educational goals.[1] Faculty members are the most important factor in rebuilding education.[2] Interaction is a kind of two-way communication, which requires constant exchange and transitions. In this type of communication, the person initiates messages and each message affects the other message.[3] Interactions of a faculty member including group relationships, collaborations, and face-to-face social or scientific-research interactions inside and outside the workplace, research collaborations between faculty members, membership and participation in scientific associations, faculty members’ desire for collective activities, and professional and nonprofessional meetings are outside the workplace.[4] Student–faculty interaction is actually the quality of communication between student and faculty.[5] Faculty–student interaction has been mentioned as one of the influential factors on the quality of teaching in the classroom.[6] Communication between educator and student has the potential to improve the learning experience. Interaction is simply the transfer of information from one person to another, or a group to another person. Effective communication is the

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process of exchanging ideas, thoughts, knowledge, and information in a way that fulfills the goal or purpose in the best possible way. Therefore, interaction of faculty member in educational organizations is so important that one of the purposes of creating a university is social interaction of individuals with each other, which leads to the production and transfer of knowledge as well as updating the scientific information of the audience. The results show that the interaction between the student and the faculty successfully mediated the effects between the factors of student participation and students’ academic achievement. Moon states that attention to interactions in universities and the relationship between different units inside and outside the organization, coherent interaction, and the sustainability of different academic departments is important and university administrators should seek to create appropriate contexts for interpersonal and group interactions.

Rampai and Sopeerak believe that the quality and extent of professors’ interactions with students is one of the important factors in students’ success in acquiring the necessary competencies. Li and Yang have shown that interaction of faculty–student has an important impact on students’ self-efficacy in the flipped classroom in university. Kim and Lundberg have stated that interaction between faculty and students leads to greater academic participation and increased critical reasoning skills among students, which in turn can improve the quality of the university.

Yaghoubi et al. have been in a research study, although the master’s scientific and knowledge proficiency is an important factor, but from the results of a systematic study and the perspective of experts, we can point to the greater importance of interaction and establishing a sincere relationship with the student as one of the important factors in motivating and academic achievement of students. Sattari states that paying attention to the power of communication component creates a friendly and interactive environment and there is no discrimination in the classroom. The results of studies in Iran indicate the weakness of communication and interaction structure among faculty members and the interactions are mainly limited to organizational structures and there is little outside interaction and cooperation.

Faculty members–students’ interactions can influence students’ orientation and investment in their academics’ experience and shape future learning. Interactions offer great value to both students and educators. Considering the importance of faculty members’ interactions, the aim of this study was to determine the factor affecting on interaction of faculty members with students and colleague by meta-synthesis method, because the meta-synthesis method compiles, integrates, and interprets the findings of studies conducted in this field by producing more comprehensive findings in a specific subject area through a systematic approach, therefore offers a more complete perspective on understanding the subject. The novelty of the present study is due to the meta-synthesis on the phenomenon of “faculty interactions,” which has not been studied by reviewing published articles and sources.

Materials and Methods

Study design and setting
This study was applied in terms of purpose, qualitative in terms of data nature and analysis style, and documentary in terms of data collection method based on information. Accordingly, the published researches on the interaction of faculty members in valid scientific databases were scanned based on keywords and the most relevant studies were selected using a purposeful approach. Research data were collected and analyzed by met synthesis method. Coding method was used to analyze the data. This qualitative meta-synthesis study was performed by Sandelowski and Barros method [Figure 1]. Based on this method, the research steps are as follows: Step 1: set up research questions, Step 2: systematic review of literature, Step 3: search and select appropriate sources, Step 4: extraction of results, Step 5: analysis and integration of findings, Step 6: data quality control, and Step 7: present the findings. The purpose of using this method is specifically to compare, interpret, translate, and combine different frameworks. Meta-synthesis overview of the literature is not the subject matter and analysis of secondary data and primary data from selected studies but the analysis and interpretation of the findings of these studies for in-depth understanding. In the meta-synthesis, the ideas, mindsets, approaches, results, and findings of previous qualitative and quantitative researches are examined. Since meta-synthesis deals with qualitative data, so studies with qualitative methods such as interviews and systematic review and quantitative research such as correlation and survey that had qualitative results were examined.

Study participants and sampling
First, the research question was designed. The statistical population in this study were research resources (articles and dissertations) that were selected using the keywords interaction, faculty members, collaboration through search in databases Science Direct, Google Scholar, Eric, ProQuest, Magiran, Noormags and SID. The period 1995–2011 was used for English sources and 1385–1400 for Persian sources.

Data collection tool and technique
Inclusion criteria were studies that reported sufficient information about the purpose, and exclusion criteria
were studies that were not accessible. The selection of appropriate research and resources were done based on screening according to the relevance of the title, abstract, and text with the main research question. The evaluation of the quality of research at this stage was done by the Critical Appraisal Skills Program (CASP) consisting of 10 questions. The questions focus on the following: 1. research objectives, 2. method logic, 3. research design, 4. sampling method, 5. data collection, 6. reflectivity, 7. ethical considerations, 8. accuracy of data analysis, 9. clear expression of findings, 10. value research For each study, a score of 1–5 was assigned to each question in terms of having the above characteristics. At this stage, the researcher assigned a quantitative score to each of these questions, and then created a form and assigned the scores assigned to each article. Rubric CASP 50-point scale, included excellent (41–50), very good (40–31), good (30–21), average (11–20), and poor (10–0). After determining the final sources, the findings of the studies were carefully reviewed and the codes of each were extracted. In the fifth step, the extracted codes were classified based on the frequency and similarity of the categories and concepts. After establishing the desired category, the extracted codes were given to another person to control quality and maintain reliability. In the sixth step, the results were reviewed by the observer and then the resulting category was compared with the previous category and evaluated using Cohen’s kappa index. In addition, peer check strategy and the use of qualitative research experts were used to validate the data. In the seventh step, the codes were presented in the form of categories and concepts.

Ethical considerations
In all stages of the present study, the ethical principle of fidelity has been observed in citing sources and using their results. This research has the code of research ethics committee number 985033

Results
In this section, the results of each step of this analysis have been presented separately.
were identified as the factors affecting on interaction of faculty member [Table 2] and also 8 axial codes (concept) and 2 selective codes (categories) were identified as the outcomes of faculty member' interaction [Table 3]. The pivotal codes and sources of code extraction are given in Tables 4 and 5.

Step 6: Data quality control. At this stage, an attempt was made to follow and carry out the research steps accurately and correctly. For this purpose, the process of self-review, coding, and identification of concepts was performed again to minimize possible problems and biases. The kappa value fluctuates between 0 and 1. In this study, the kappa index was calculated to be 0.89, since the obtained reliability coefficient is more than 0.60 and indicates agreement between the browsers, therefore, the reliability of the coding was confirmed.

Step 7: Presentation of the results. At this stage, the findings of the research are presented. Based on the frequency of open codes obtained in this study, the factors affecting the interactions of faculty members are listed in Figure 3. the communication factor with 36 open codes as the most important factor in terms of frequency, followed by the emotional-cognitive factor (32 open codes), sociocultural factor (30 open codes), management factor (21 open codes), educational factor (20 open codes), and professional factor (16 open codes) were effective on interaction of faculty members. In addition, the individual outcome theme had 39 codes and the organizational outcome theme had 9 open codes.

### Discussion

Based on the findings of this study, emotional-cognitive factor, sociocultural factor, communicational factor, educational factor, management factor, and professional

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Table 1: Research questions-meta-analysis

| Indicators | Research questions |
|------------|--------------------|
| What       | What are the factors affecting on interaction between faculty member, student, and colleague? |
| Who        | What is the study population to identify the factors affecting on interaction of faculty member? |
| When       | In what period of time were the above factors investigated and searched? |
| How        | What method has been used to provide the studies? |

Table 2: Categories and subcategories of the factors affecting on interaction of faculty member

| Professional factor          | Professional knowledge |
|------------------------------|------------------------|
|Communication factor          | Communication skill     |
|Sociocultural factor          | Social origin           |
|Management factor             | Politics and rules      |
|Emotional-cognitive factor    | Support-access          |
|Educational factor            | Economic capital        |

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Figure 2: The process of selecting research studies
factor were obtained as the factors affecting on interactions of faculty members with students and colleagues. Furthermore, individual outcome and organizational outcome were defined as the outcomes of faculty member’ interaction with students and colleagues. One of the factors affecting the interactions in this study was the emotional-cognitive factor with subcategory including belief-attitude, motivation, metacognition. In this regard, Livingston emphasizes that alignment of interactions with individual values and beliefs is important in interaction, and faculty interest in scientific activity and work is effective in having scientific interaction with colleagues.\[5\] Another category as an affecting factor on the interactions of faculty members in this study was the sociocultural factor with sub categories including social origin, cultural attitude, cultural capital and sociocultural activities in this study [Table 2]. It is no secret that cultural similarities and differences affect the level of interaction of individuals in all organizations, including educational organizations, and paying attention to this factor can help individuals

| Table 3: Categories and subcategories of the outcomes of faculty member’ interaction |
|-----------------------------------------|----------------------------------|
| **Organizational outcome**             | **Individual outcome**           |
| Social capital                         | Educational achievement          |
| Student retention                      | Academic welfare                 |
| Improving the quality of the university | Psychological well-being         |
|                                       | Lifelong learner training        |
|                                       | Professional development of the faculty |

| Table 4: Axial codes related to the factors affecting on the interactions of faculty member |
|-----------------------------------------|---------------------------------------------------------------|
| **Codes**                               | **References**                                                |
| Belief-attitude                         | Livingston (2011),[25] Lynn (2008),[26] Cox and Orehovec (2007),[25] Roastami-Nasab et al. (2020),[26] Haghighi et al. (2015),[27] Ghaneirad (2006),[28] Soltani et al. (2020),[29] Nazarzadeh Zare et al. (2016),[30] Einarson and Clarkberg (2004),[31] Komarraju et al. (2010),[32] Vianden (2009),[33] Cho and Kim (2020)[34] |
| Motivational                            | Livington (2011),[25] Lynn (2008),[26] Nazarzadeh Zare (2018),[41] Ahmadi et al. (2015),[30] Komarraju et al. (2010),[32] Nazarzadeh Zare et al. (2016),[30] Alderman (2008),[36] Boylan (2017),[37] Cejda and Hoover (2010),[38] Vianden (2009),[32] Cotton and Wilson (2006)[39] |
| Metacognition                           | Nazarzadeh Zare et al. (2016),[30] Nazarzadeh Zare et al. (2016)[40] |
| Social origin                           | Neville (2011),[41] Kim and Sax (2009),[42] Soltani et al. (2020),[29] Ingraham et al. (2018),[43] Cox et al. (2010),[44] Vianden (2009)[30] |
| Cultural attitude                       | Cody (2017),[45] Nazarzadeh Zare et al. (2016),[30] Nazarzadeh Zare et al. (2016)[40] |
| Cultural capital                        | Cox and Orehovec (2007),[25] Bagheri Heidari (2014),[44] Roastami-Nasab et al. (2020),[26] Nazarzadeh Zare et al. (2018),[41] Navah et al. (2012),[47] Ahmadi et al. (2015),[30] Nazarzadeh Zare et al. (2016),[30] Nazarzadeh Zare et al. (2016)[40] |
| Sociocultural activities                | Roastami-Nasab et al. (2020),[26] Ghaneirad (2006),[28] Navah et al. (2012),[47] Alderman (2008),[36] NikooNezhad and Zamani (2014)[46] |
| Communication skill                     | Ross (2013),[49] Ghaneirad (2006),[28] Hoffman (2014),[26] Ahmadi et al. (2015),[30] Nazarzadeh Zare et al. (2016),[25] Ingraham et al. (2018),[43] Einarson and Clarkberg (2004),[31] Nazarzadeh Zare et al. (2016),[40] Alderman (2008),[28] Ghadami et al. (2007),[51] Lynn (2008),[24] Sagayadevan and Jeyaraj (2012),[25] Abdolahpour et al. (2017),[53] Zolfagharian et al. (2018),[41] Sobhaninejad and Ahmadi (2013),[30] Ghaneirad (2006),[28] Hoffman (2014),[26] Cox et al. (2010),[40] Komarraju et al. (2010),[32] Fuentes et al. (2014)[46] |
| Technology                              | Alywin (2019),[49] Hoffman (2014),[26] NikooNezhad and Zamani (2014)[46] |
| Ethics                                  | Ross (2013),[49] Denise et al. (2020),[38] Neville (2011),[41] Sobhaninejad and Ahmadi (2013),[55] Haghighi et al. (2016),[28] Ghaneirad (2006),[28] Soltani et al. (2020),[29] Ahmadi et al. (2015),[30] Komarraju et al. (2010),[32] Alderman (2008),[28] Abedini et al. (2013),[39] Ghadami et al. (2007),[51] Moradi et al. (2020),[26] Tolabi (2017)[31] |
| Professional knowledge                  | Ross (2013),[49] Nazarzadeh Zare (2018),[41] Navah et al. (2012),[47] Soltani et al. (2020),[29] Ahmadi et al. (2015),[30] Einarson and Clarkberg (2004),[31] Nazarzadeh Zare et al. (2016),[30] Abedini et al. (2013),[39] Cejda and Hoover (2010),[30] Moradi et al. (2020)[46] |
| Professional skills                     | Ross (2013),[49] Sagayadevan and Jeyaraj (2012),[25] Haghighi et al. (2015),[27] Nazarzadeh Zare (2018),[41] Navah et al. (2012),[47] Ahmadi et al. (2015),[30] Nazarzadeh Zare et al. (2016),[30] Nazarzadeh Zare et al. (2016),[30] Abedini et al. (2013),[39] Ghadami et al. (2007),[51] Cejda and Hoover (2010),[30] Moradi et al. (2020)[46] |
| Educational methods                     | Henry et al. (2020),[26] Lynn (2008),[24] Alywin (2019)[37], Abdolahpour et al. (2017),[36] Zolfagharian et al. (2018),[54] Roastami-Nasab et al. (2020),[26] Ghaneirad (2006),[28] Nazarzadeh Zare et al. (2016),[40] Cejda and Hoover (2010)[36] |
| Context-environmental                   | Roastami-Nasab et al. (2020),[26] Sobhaninejad and Ahmadi (2013),[30] Nazarzadeh Zare et al. (2018),[31] Ghaneirad (2006),[28] Hoffman (2014)[39] |
| Educational facilities and resources    | Neville (2011),[41] Zolfagharian et al. (2018),[36] Ghaneirad (2006),[28] Soltani et al. (2020),[29] Moradi et al. (2020),[30] Cotton and Wilson (2006)[36] |
| Politics and rules                      | Cox and Orehovec (2007),[25] Nazarzadeh Zare et al. (2018),[44] Soltani et al. (2020),[29] Ahmadi et al. (2015),[30] Nazarzadeh Zare et al. (2016),[30] Moradi et al. (2020)[46] |
| Support and access                      | Juarez (2017),[52] Livingston (2011),[25] Denise et al. (2020),[38] Cox and Orehovec (2007),[25] Abdolahpour et al. (2017),[36] Roastami-Nasab et al. (2020),[26] Haghighi et al. (2015),[27] Nazarzadeh Zare (2018),[41] Hoffman (2014),[26] Soltani et al. (2020),[29] Ingraham et al. (2018),[43] Komarraju et al. (2010),[32] Alderman (2008),[36] Fuentes et al. (2014),[39] Vianden (2009),[30] Choi and Kim (2020),[26] Cotton and Wilson (2006)[36] |
| Economic capital                        | Juarez (2017),[52] Cox and Orehovec (2007),[25] Abdolahpour et al. (2017),[35] Nazarzadeh Zare (2018)[44] |
Education for survival requires communication, and the importance of emotional interaction in increasing learning outcomes in students.According to this category, the knowledge and skills of faculty members in their jobs and specialized fields affect their interactions. Efforts to develop knowledge and skills can expand the range of their interactions with peers and students. In this regard, student–faculty interactions can be very important in developing students’ academic self-concept and increasing their motivation and achievement.

The educational factor with the subcategory including educational methods, context-environmental and educational facilities, and resources was another affecting factor on the interactions of faculty members with student and colleagues in this study [Table 2]. Lynn mentions interactive learning and active learning methods, such as group learning and collaborative learning as a motivating factor for establishing and improving student interaction. Also, team learning and knowledge management lead to increased innovation and accountability of people in the university. Equipment and facilities and scientific activity are influential factors in faculty members’ interactions.

The last factor influencing the interactions of faculty members was the management factor with three needs. Consistent with these findings, interaction and communication between students and professors and cooperation between classmates are important factors in student satisfaction. Professional ethics and communication skills are important factors in the international collaboration of academic researchers. One of the affecting factors on faculty members’ interactions was the professional factor with subcategory (professional knowledge and professional skills) [Table 2]. According to this category, the knowledge and skills of faculty members in their jobs and specialized fields affect their interactions. Efforts to develop knowledge and skills can expand the range of their interactions with peers and students. In this regard, student–faculty interactions can be very important in developing students’ academic self-concept and increasing their motivation and achievement.

The communicational factor was another affection factor on the interactions with the subcategory of communication skills, technology, and ethics [Table 2]. Communication skills can help faculty members interact constructively with others in their work environments. Education for survival requires communication, and a better understanding of communication skills is essential in advancing and achieving goals and meeting
subcategories including politics and rules, support-access, and economic capital [Table 2]. Consistent with this study, Wilson et al. in their study concluded that factors such as student support by teacher, teacher availability, and mutual respect between teacher and student have a positive effect on the behavioral and emotional interaction between teacher and student. In the study of Mohammadimehr and Mirmoghaidaie, one of the important components in student support in the virtual learning environment to achieve academic success is interactive support. In this study, while emphasizing the importance of student interactions with the teacher, it is recommended to manage, organize, and develop interactions through platforms and social networks and e-learning tools. [72]

In the present study, two categories were obtained as the outcomes of faculty members’ interactions. One of these categories was the individual outcome with 5 subcategories including educational achievement, academic welfare, psychological well-being, lifelong learner training, and professional development of faculty member. Another category was the organizational outcome with subcategories including social capital, student retention and improving the quality of university [Table 3]. Kim and Ludnberg have pointed out that faculty–student interaction has many consequences, including increased learning of subjects, development of students cognitive skills, academic self-esteem, and increased students’ sense of belonging to the educational institution. [13] Hoffman has stated that the impact of faculty interaction with students on academic achievement, intellectual growth, personal growth, and student retention in the university is effective. [38] Noorshahi emphasizes that faculty members’ interactions with peers have important consequences, including accelerating their socialization process at the beginning of service and increasing their satisfaction and success along the way to becoming a professional. [68] Jarecke in a research study concluded that student–teacher interactions lead to retention and satisfaction among college students. [67] Formal and informal conversations and interactions between faculty members–students can support new and creative ideas. [73]

**Limitation and recommendation**

This study, like other meta-synthesis studies, has limitations including the process of searching that did not allow access to the full text of some sources which were excluded from the study. There was another limitation, like other qualitative studies in data content analysis, because this stage is the mental interpretation of researcher, to overcome this limitation by the peer check. It is recommended that researchers study the interactions of faculty–students and colleagues through other qualitative approaches such as phenomenological studies or ethnography with respect to the impact and role of context in creating and strengthening interactions in their university. It is also suggested that the relationship between the factors affecting faculty members’ interactions with other related components such as students’ academic achievement be investigated through quantitative studies, including structural equations. In addition to qualitative studies, it is recommended that in medical universities, quantitative studies be conducted by designing a valid questionnaire that includes the categories that affect the interactions of faculty members and students and colleagues.

**Conclusion**

Faculty members are one of the most important elements and factors in the growth and development of universities and higher education. Undoubtedly, interactions in universities and institutions of higher education and among its elements are of great importance. Researchers have also confirmed this issue and stated that in addition to education and research, one of the most important issues in universities is the existence of social interactions between people. [69] According to the results of this study, regarding the consequences of faculty members’ interactions, it is appropriate for university officials and administrators to pay attention to the factors affecting faculty members’ interactions in this study and provide a suitable platform for improving interactions of faculty member with students and colleagues in the university environment. It is suggested that the managers of higher education institutions and universities, by formulating policies and providing appropriate facilities, support the flow of favorable interactions between faculty members with peers and students. The policies of higher education universities in Iran should be formulated in such a way as to provide a basis for increasing interactions and communication between faculty members and students. Faculty members and student professors are encouraged to pay attention to the results of this study and consider them in their interactions in order to create and improve interactions. It is recommended that faculty members pay attention to the beliefs, attitudes, and cultural differences of their students and peers in their interactions, and understand and use the subtleties and skills of human communication. It is suggested that workshops on communication skills, professional ethics, and education be held in order to strengthen the necessary capabilities to establish appropriate and dynamic interaction between faculty members–students and other colleagues in universities.

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Conflicts of interest
There are no conflicts of interest.

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