Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Design and Psychometric Validation of the Questionnaire on Goals of Training Transfer among Faculty Members in Medical Sciences

Fateme Tahmasebi Boldaji
Shiraz University of Medical Sciences
Hatem Faraji Dehsorkhi
Shahid Bahonar University of Kerman
Ali Asghar Hayat
ali.hayat63@gmail.com
Shiraz University of Medical Sciences
Mohammad Hasan Keshavarzi
Shiraz University of Medical Sciences
Mohammad Mahdi Parvizi
Shiraz University of Medical Sciences

Research Article

Keywords: Training Transfer, Psychometrics, TRGP, Faculty Members

Posted Date: November 6th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11228546/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

Abstract

Effective transfer of Training from faculty development programs to real-world teaching practice is a major challenge in health professions education. Despite the importance of faculty members' motivational goals in this process, no localized, theory-based instrument has yet to be developed to assess these goals in the Iranian medical sciences context. Therefore, this study was conducted to design and validate a questionnaire on the goals of training transfer among faculty members in medical sciences based on the Theory of Reasoned Goal Pursuit. This sequential exploratory mixed-methods study (qualitative-quantitative) was conducted in 2025. In the qualitative phase, semi-structured interviews were conducted with 14 purposively selected faculty members (maximum variation). Data were analyzed using conventional qualitative content analysis within the TRGP framework. In the quantitative phase, face validity, quantitative content validity (CVR and CVI by 11 experts), and construct validity using CFA with 92 faculty members were assessed. The qualitative phase identified two main themes ("procurement goals" and "approval goals") and seven subthemes, leading to a 22-item questionnaire. After content validity assessment, two items were removed, resulting in a 20-item version. Confirmatory factor analysis confirmed the seven-factor structure: facilitating student learning, resource optimization, meeting expectations, intrinsic satisfaction, reputation among students, adaptation to changes, and scientific authority among colleagues. The model showed acceptable fit indices. Thus, the Questionnaire on Goals of Training Transfer, with its seven-factor structure, has desirable validity and reliability and can serve as a valid tool for assessing faculty members' goals and motivations in applying professional learning.

Introduction

Education is a process that derives meaning from transforming experience into new behaviors, and the successful transfer of this learning to the workplace indicates the effectiveness of professional development programs(1). Training transfer is defined as "the generalization and maintenance of knowledge, skills, and attitudes acquired in training programs to the work environment" (2, 3). In other words, this process involves the effective application of learned content in job-related situations to improve performance and achieve organizational goals(4).

In medical higher education settings, faculty members, as the cornerstone of training the next generation of health professionals, require continuous updating of their teaching competencies(5). However, the gap between learning in professional development programs and their effective implementation in the classroom is recognized as a serious barrier to the effectiveness of educational investments(6). In this context, understanding the goals that motivate faculty members to transfer their learning can play a decisive role in designing targeted educational interventions.

Identifying and measuring the goals of training transfer, especially in the cultural-organizational context of Iranian medical sciences, is important for two reasons: first, it helps design faculty development programs aligned with their real motivations and needs; second, it provides a valid tool for evaluating the

effectiveness of educational programs from the perspective of faculty acceptance and application(7). Nevertheless, no localized and validated instrument for measuring these goals has yet been developed for the population of faculty members in Iranian medical sciences. The absence of such a tool has deprived educational planners of a deep understanding of the drivers of training transfer(8).

Previous studies in the field of training transfer have primarily focused on organizational, individual, and instructional factors(3). In recent years, psychological theories such as the Theory of Reasoned Goal Pursuit (TRGP), proposed by Ajzen and Kruglanski, have emerged. By integrating cognitive and motivational elements, TRGP provides a suitable framework for explaining goal-directed behaviors, including training transfer. The core of TRGP is the distinction between two categories of goals:

1. Procurement Goals: which refer to the desired outcomes or results that an individual seeks to achieve through performing a behavior (e.g., improving professional competence or enhancing teaching quality); and
2. Approval Goals: which relate to gaining approval and acceptance from individuals or groups important to the person (e.g., gaining respect from colleagues or satisfaction from managers)(9) .

Accordingly, individuals' motivation to perform a behavior (such as training transfer) largely depends on their perception of how that behavior helps them achieve these active goals. Thus, TRGP offers an appropriate analytical framework for explaining the intrinsic and extrinsic motivations of faculty members in applying professional learning. However, most existing studies using TRGP have been conducted in non-educational domains (such as health and environment)(10). While in medical education, similar psychological theories such as the Theory of Planned Behavior (TPB) have been used to predict behaviors like training transfer in nurses(11) and knowledge sharing among medical instructors(12), the application of the Theory of Reasoned Goal Pursuit (TRGP) in this field—particularly in the form of localized instruments for measuring the goals of training transfer—remains overlooked(10). This is despite the fact that TRGP, with its focus on "approval goals" and "procurement goals," can provide a more coherent framework for explaining the intrinsic and extrinsic motivations of faculty members.

Therefore, the aim of the present study was to design and validate a questionnaire on the goals of training transfer among faculty members in medical sciences based on the TRGP. Specifically, this study seeks to answer the following questions: 1) What goals do faculty members in medical sciences pursue from training transfer? and 2) What is the validity of the designed questionnaire on the goals of training transfer? The present study can fill the existing gap in the research literature on the goals of training transfer, as well as provide a valid instrument for measuring these goals among faculty members, and offer an appropriate empirical basis for designing faculty development programs tailored to their goals.

Materials and Methods

Study design

This study was conducted using a sequential exploratory mixed-methods approach (qualitative-quantitative) in the 2025 academic year among faculty members of medical sciences universities in Iran.

Phase one: qualitative study

To answer the first research question, a qualitative research method was used. The target population was all faculty members of Shiraz University of Medical Sciences in Iran who had participated in medical education and e-learning fellowship programs in the last 5 years. To identify these individuals, purposive sampling with convenience, snowball, and maximum variation sampling strategies was used. Semi-structured interviews were used for data collection. Prior to the interviews, an extensive review of the literature on training transfer, the TRGP, and existing instruments for measuring training transfer goals was conducted, and an interview protocol was developed consisting of the research title and objectives, the reason for selecting the interviewee, how the interview data would be used, and the interview questions. Sample interview questions included: "What was your motivation for participating in medical education and e-learning programs?" "Did you use what you learned from these programs in the classroom?" "With what goal did you do this?"

The interview process was as follows: about one week before the interview, the interview protocol was sent to the interviewee, and then the time and place of the interview were determined. During the interview, an attempt was made to establish a relationship based on trust and respect with the interviewee, and the interview was recorded with the interviewee's permission. Nine interviews were conducted in person, and five interviews were conducted online via Google Meet due to geographic distance or personal preference of the interviewees. The average duration of the interviews was about 25 minutes. Immediately after each interview, the audio file was transcribed verbatim and analyzed using the conventional content analysis method of Graneheim and Lundman(13) within the framework of the TRGP. To ensure the trustworthiness of the research, the member checking technique was used. For this purpose, the research findings were provided to 5 interviewees, and they were asked to express their opinions about the identified themes, and the themes were edited based on their feedback.

Phase two: quantitative study

To answer the second research question, a quantitative research method was used. The statistical population of the study included all faculty members of medical sciences universities in Iran who had participated in the aforementioned programs. The procedure was as follows: first, based on the findings of the qualitative phase, a 22-item questionnaire with seven dimensions (facilitating student learning, resource optimization, meeting expectations, intrinsic satisfaction, reputation among students, adaptation to changes, and scientific authority among colleagues) was developed. The final version of the questionnaire is provided as Supplementary File 1.

Then, in the second step, the face validity of the questionnaire was assessed by a group of 5 faculty members of Shiraz University of Medical Sciences to examine clarity, readability, and appropriateness of wording, and revisions were made based on their feedback. For example, the initial item "Applying learned content in the classroom improves student learning" was evaluated by experts as very general and vague; at their suggestion, this item was reworded to "Applying what has been learned from educational programs in the classroom makes deep learning possible for students" to both emphasize the deep and qualitative aspect of learning and to clarify the condition of feasibility ("makes possible"). Other items were similarly reviewed and revised for fluency, conceptual ambiguity, and simplification of expressions.

In the third step, to assess quantitative content validity, CVR and CVI techniques were used. For this purpose, the questionnaire was given to another group of 11 faculty members of Shiraz University of Medical Sciences to evaluate the items based on two indices: "necessity" and "relevance". According to the Lawshe table (1975), the acceptable CVR for each item was 0.59, and the acceptable CVI for each item was 0.79. In the fourth step, to assess construct validity, confirmatory factor analysis (CFA) was used with AMOS software version 24. Also, the reliability of the questionnaire was calculated using Cronbach's alpha coefficient with SPSS software version 27. A 5-point Likert scale was used for item rating. For this purpose, the questionnaire was administered to a random sample of 92 faculty members of Shiraz University of Medical Sciences. The sample size was estimated based on the criterion of 5 participants per item. The factor structure of the questionnaire was evaluated using the following indices: χ^2/df, RMSEA, GFI, AGFI, CFI, TLI, and NFI. Additionally, standardized factor loadings, standard error, critical ratio (CR), and correlations between constructs were examined using covariance.

Ethical Considerations

This study was approved by the Ethics Committee of Shiraz University of Medical Sciences with the code **IR.SUMS.MED.REC.1404.334**. The present article is derived from the PhD dissertation of Ms. Fateme Tahmasebi Boldaji in Medical Education. Informed consent was obtained from all participants, and their data confidentiality was fully respected.

Results

Qualitative Findings

To identify and extract the components of training transfer goals from the perspective of faculty members in medical sciences, qualitative content analysis of semi-structured interviews with 14 faculty members participating in medical education and e-learning fellowship programs was conducted. The mean age of participants was 42.2 years, and the mean teaching experience was 11.5 years. The balanced gender distribution (7 females, 7 males) and diversity of educational groups (including 11

specialized departments) indicated purposive sampling with maximum variation. Detailed demographic characteristics are presented in Table 1.

Table 1
Demographic characteristics of the participants

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	30–39	5	35.7
	40–49	6	42.9
	50–59	2	14.3
	≥ 60	1	7.1
Gender	Female	7	50
	Male	7	50
Teaching experience (years)	< 5	3	21.4
	5–14	7	50
	≥ 15	4	28.6
Academic department	Nursing	3	21.4
	Emergency Medicine	1	7.1
	Oral Health	1	7.1
	Operating Room	1	7.1
	Traditional Medicine	1	7.1
	Medical Education	3	21.4
	Health Education and Health Promotion	1	7.1
	Disaster and Emergency Health	1	7.1
	Biostatistics	1	7.1
	Nutrition	1	7.1

Qualitative data analysis using an inductive approach and the Graneheim and Lundman model led to the identification of two main themes consistent with the TRGP theoretical framework: procurement goals and approval goals. These themes encompassed several sub-themes, which are summarized in Table 2.

Table 2
Themes, sub-themes, and sample extracted items from the interviews

Sample item (extracted concept)	Sub-themes	Main theme
Possibility of deep learning by applying learned content in the classroom	Facilitating student learning	Procurement goals
Better time management and reduced administrative burden using new methods	Resource optimization	
Keeping pace with curriculum developments and educational technologies	Adaptation to changes	
Personal satisfaction from professional development and scientific curiosity	Gaining intrinsic satisfaction	
Enhancing teaching evaluation and consolidating credibility among students	Reputation among students	Approval goals
Strengthening the consultative role and being recognized as a pioneer	Scientific authority among colleagues	
Responding to university expectations and professional commitment	Meeting expectations	

Procurement Goals

These themes refer to the tangible and functional outcomes of training transfer that directly fulfill the professional and educational needs of faculty members.

- **Facilitating student learning**: Most participants believed that applying innovative learning methods deepens students' understanding and increases their participation. One faculty member stated: *"When I used interactive tools, students became more active and understood the material better."* He added: *"Teaching with the methods I learned in the course transformed the class from a boring lecture into a dynamic and interactive session. Students moved beyond being mere listeners; they gave ideas, criticized, and engaged in discussions with each other. The result was that their learning became deeper and they attended class with much greater enthusiasm."*
- **Resource optimization**: Participants considered time management and workload reduction as achievements of training transfer. One professor said: *"If my teaching method is up-to-date, I spend less energy and achieve higher productivity."* Another stated: *"To implement a new method in class, just learning is not enough. I also need sufficient time to prepare the content according to the lesson, provide the necessary tools, and get myself ready for student feedback. If my time is taken away or I am constantly busy with administrative, executive, and research tasks, I practically lose this ability."*
- **Adaptation to changes**: The need for flexibility in response to changes in the educational environment (such as virtual education during the COVID-19 pandemic) was a strong motivator for transferring learned content. One interviewee said: *"The new generation of students has grown up*

with technology; we have no choice but to change our methods." Another professor said: *"Sometimes, due to the forced circumstances of COVID-19 or the conditions of our classes, we eventually have to hold the class online. That need for virtual education drove us in this direction."*

- **Gaining intrinsic satisfaction**: Lifelong learning interest and scientific curiosity were mentioned as intrinsic drivers of training transfer. One faculty member expressed: *"The joy of learning and the good feeling of transferring knowledge to others motivate me to use new methods."* Another participant said: *"Personally, I am interested in the topic of education. These interests lead a person toward learning more and transferring what they have learned."*

Approval Goals

These themes reflect motivations related to gaining acceptance, respect, and credibility from others.

- **Reputation among students**: Faculty members acknowledged that using new learning enhances the quality of their teaching in students' eyes. One professor said: *"When students see that the professor uses up-to-date methods, they show more respect."* Another stated: *"In end-of-semester evaluations, the professor's up-to-dateness is valuable to students, and this has a positive impact on my teaching evaluation score."*
- **Scientific authority among colleagues**: Some participants viewed training transfer as an opportunity to play a consultative role and become an educational role model. One professor said: *"My colleagues ask for my opinion on implementing a new method; this sense of authority is valuable to me."* Another participant stated: *"Ever since I showed the results of implementing the new teaching method in our department, several younger colleagues asked me to hold a small workshop for them."*
- **Meeting expectations**: A sense of responsibility toward university policies and educational standards was also a factor in training transfer. One professor stated: *"Transferring learned content is part of my professional duties as a faculty member."* Another faculty member said: *"A sense of conscientiousness and responsibility. I think and believe that the very philosophy of my existence as a professor is to teach, to educate, to share what I have learned."*

Quantitative Results

The content validity of the questionnaire was assessed using the Content Validity Ratio (CVR) and the Content Validity Index (CVI) with the participation of 11 experts in medical education and psychometrics. Based on this assessment, two items were removed from the questionnaire due to scores below the standard threshold (CVR ≥ 0.59 and CVI ≥ 0.79), and the final version consisted of 20 items. Table 3 shows the CVI and CVR values for the remaining items broken down by the seven constructs. The acceptable CVR values based on the Lawshe table (1975) for 11 experts is ≥ 0.59, and the acceptable CVI is ≥ 0.79. All factor loadings were significant at the $p < 0.001$ level. Items Q3 (CVR = 0.45), Q13 (CVR = 0.45), and Q16 (CVR = 0.45), despite obtaining a CVR below the standard threshold, were retained in the

final version of the questionnaire due to their high theoretical importance based on the TRGP framework and their significant factor loadings in confirmatory factor analysis.

Next, Cronbach's alpha coefficient was calculated using SPSS software, and the results showed that the Cronbach's alpha for the entire questionnaire was 0.885. Since this value is above the acceptable threshold (0.7), the internal reliability of the questionnaire was evaluated as highly desirable, indicating that the items cohesively measure the construct of "goals of training transfer." Then, construct validity was examined using confirmatory factor analysis with AMOS software. As shown in Table 3, all items had significant factor loadings on their respective constructs ($p < 0.001$). Although items Q10, Q13, and Q3 obtained scores below the standard threshold in the content validity indices (CVR and CVI), they were retained in the final version of the questionnaire due to their theoretical importance in the conceptual framework of TRGP and their significant factor loadings in confirmatory factor analysis ($p < 0.001$). This approach is consistent with methodological perspectives in the development of psychometric instruments, which emphasize that decisions about deleting or retaining items should be made by integrating theoretical, content, and construct evidence, not solely based on a single numerical index.

Figure 1 presents the final measurement model with standardized factor loadings for the 20-item questionnaire, confirming the seven-factor structure.

Figure 1. Model with standardized coefficients

Table 3
Content validity values and factor loadings of the Questionnaire on Goals of Training Transfer

Construct	Item code	Short item text	CVI	CVR	Standardized factor loading	p-value
Facilitating student learning	Q1	Improving teaching evaluation by students	0.93	0.81	0.671	< 0.001
	Q9	Responding to the educational needs of the new generation	0.93	0.81	0.415	< 0.001
	Q15	Improving student learning outcomes and competencies	1.00	0.63	0.526	< 0.001
Resource optimization	Q3	Optimal workload management during the semester	0.81	0.45	0.571	< 0.001
	Q12	Better time management in the classroom	0.81	0.63	0.430	< 0.001
Adaptation to changes	Q7	Educational flexibility in crisis situations (virtual)	0.90	0.81	0.501	< 0.001
	Q13	Adapting to national medical curriculum developments	0.93	0.45	0.566	< 0.001
	Q16	Professional survival in a dynamic educational environment	0.81	0.45	0.566	< 0.001
Intrinsic satisfaction	Q4	Personal satisfaction from professional development	1.00	1.00	0.461	< 0.001
	Q6	Scientific curiosity for new teaching methods	1.00	0.81	0.835	< 0.001
	Q8	Intrinsic interest in continuous learning	1.00	0.81	0.839	< 0.001
Meeting expectations	Q2	Professional and ethical responsibility in applying learning	1.00	1.00	0.652	< 0.001
	Q10	Alignment with university educational development policies	0.87	0.63	0.715	< 0.001
	Q17	Responding to university expectations and standards	0.90	0.63	0.684	< 0.001

Construct	Item code	Short item text	CVI	CVR	Standardized factor loading	p-value
Reputation among students	Q5	Consolidating professional credibility among students	0.90	1.00	0.662	< 0.001
	Q11	Increasing student respect	1.00	0.63	0.544	< 0.001
	Q20	Increasing respect and credibility among students	0.93	0.63	0.754	< 0.001
Scientific authority among colleagues	Q14	Increasing professional credibility among colleagues	0.96	0.63	0.629	< 0.001
	Q18	Being an educational role model for colleagues	1.00	0.63	0.876	< 0.001
	Q19	Strengthening the consultative role among colleagues	0.87	0.63	0.831	< 0.001

According to Table 4, the fit indices indicated an acceptable fit of the model to the data. Furthermore, all covariances between constructs were significant at the 0.05 level, indicating a positive and significant correlation between the different dimensions of training transfer goals. Overall, the seven-dimensional structure of the questionnaire was confirmed.

Table 4
Confirmatory factor analysis (CFA) model fit indices

Index	Obtained value	Acceptable value
χ^2/df	2.824	< 3
RMSEA	0.115	< 0.10
GFI	0.761	> 0.80
AGFI	0.663	> 0.80
CFI	0.800	> 0.80
TLI	0.745	> 0.80
NFI	0.728	> 0.80

The RMSEA value (0.115) is above the acceptable threshold (0.10), and the GFI, AGFI, TLI, and NFI indices are below the desirable threshold (0.80). Given the sample size (92 participants) and the

complexity of the model, these values are evaluated as borderline and are discussed in the limitations section.

Discussion

The findings of this study showed that the Questionnaire on Goals of Training Transfer among faculty members in medical sciences possesses desirable validity and reliability based on established psychometric criteria. The results of confirmatory factor analysis indicated that the conceptual structure of the questionnaire has an acceptable fit with the data and that the items have good ability to measure the various dimensions of training transfer goals. This finding is consistent with the recent AMEE guide on learning transfer in health professions education, which emphasizes that learning transfer occurs when the learner can apply what has been learned in new situations, and that this process is multidimensional, including components such as motivation, cognition, and practical opportunities for transfer (14).

The measurement model of the study consisted of seven main constructs that explain the various dimensions of training transfer goals among faculty members in medical sciences. These dimensions include facilitating student learning, meeting expectations, resource optimization, intrinsic satisfaction, reputation among students, adaptation to changes, and scientific authority among colleagues. The standardized factor loadings of most items were within an acceptable range, indicating an appropriate relationship between the items and their respective constructs and supporting the construct validity of the instrument. Although a limited number of items had factor loadings somewhat lower than desirable, they were retained in the model due to their conceptual importance within the theoretical framework of the instrument.

One of the important dimensions identified in the model is the construct of "facilitating student learning," which reflects faculty members' attention to the educational outcomes of training transfer in the teaching process. This finding is consistent with studies that have shown that the development of teaching skills and practical transfer opportunities, especially in health higher education, has a significant impact on the quality of teaching and student learning (15). In the medical education literature, it has also been emphasized that effective learning transfer can lead to improved educational quality and the promotion of deep student learning (16).

On the other hand, the constructs of "meeting expectations" and "adaptation to changes" indicate the important role of the organizational context in shaping training transfer goals. This finding shows that faculty members pay attention to transferring learning not only based on individual motivations but also within the framework of institutional expectations and changes in the educational environment. This result is consistent with evidence highlighting the role of organizational policies, managerial support, and institutional culture in facilitating training transfer (17). Alignment between individual goals and organizational policies is considered a key success factor in applying the results of professional development programs in academic settings (2).

The construct of "resource optimization" refers to the practical and managerial aspects of training transfer and shows that faculty members can use their learning to better manage their time, resources, and educational activities. This dimension aligns with findings from studies in the field of professional learning in health, which show that effective learning transfer can lead to improved efficiency and productivity in educational and professional settings (18). Given the time constraints and high workload of faculty members in medical sciences universities, such a function can play an important role in the acceptance and application of learning from professional development programs (19).

The construct of "intrinsic satisfaction" also emphasizes the role of intrinsic motivation in the training transfer process. The items in this dimension reflect personal satisfaction from applying learning, interest in continuous learning, and a desire for professional development. This finding is consistent with conceptual models of training transfer that have introduced motivation as a key element in the maintenance and generalization of learning (14). This result is also compatible with motivational models of training transfer, which show that intrinsic motivation plays an important role in the practical application of learning in the workplace (4). In the field of medical education, studies have also shown that faculty members sustainably apply new learning in their teaching when this process aligns with their internal values and professional interests (5).

The other two dimensions of the model, namely "reputation among students" and "scientific authority among colleagues," reflect the social dimension of training transfer goals. This finding indicates that, in addition to individual and organizational aspects, training transfer can also lead to the strengthening of faculty members' professional standing among students and colleagues. This result is consistent with the "approval goals" component of the Theory of Reasoned Goal Pursuit (TRGP), which states that individuals, in addition to fulfilling personal needs, also seek social acceptance and credibility (10). In medical science educational environments, where the interaction between professor and student plays a central role, such motivations can play an important role in applying new learning in teaching. This finding is also consistent with the literature on professional norms and the role of organizational culture in motivating the application of learning (15).

From a theoretical and practical perspective, the results of this study show that training transfer goals among faculty members are a multidimensional phenomenon influenced by a combination of individual, organizational, and social factors. Therefore, assessment instruments in this area must be able to consider a wide range of these dimensions in order to provide a more comprehensive picture of the motivations and goals of training transfer. The findings of this study also indicate that multidimensional conceptual frameworks of learning transfer can provide a suitable basis for the development of localized instruments in medical education, especially when the aim is to measure the real outcomes of professional development programs on faculty members' performance (14).

In summary, the results of confirmatory factor analysis support the multidimensional structure of the Questionnaire on Goals of Training Transfer and show that this instrument has adequate construct validity for assessing training transfer goals among faculty members in medical sciences. Furthermore,

the conceptual structure of the instrument has acceptable alignment with the theoretical framework of TRGP and indicates that training transfer goals are a combination of goals related to fulfilling personal needs and approval goals. This finding can fill part of the existing gap in the domestic literature, because so far, a localized, theory-based instrument for measuring training transfer goals in this population has rarely been reported. The present questionnaire can be used as a valid tool by researchers, educational planners, and faculty development administrators, and can help design educational interventions tailored to the real motivations and needs of faculty members. However, as other researchers have also pointed out, further investigation of the instrument's psychometric properties in diverse samples and different educational contexts is necessary to generalize the results and can be the subject of future studies. Finally, given the importance of learning transfer in improving the quality of education and professional performance in the health field, simultaneous attention to individual motivations, organizational context, and social dimensions can contribute to more effective design of faculty development programs in medical sciences universities.

Conclusion

The findings of the present study showed that the Questionnaire on Goals of Training Transfer has desirable psychometric properties, and its validity and reliability were confirmed based on established criteria. The confirmed seven-dimensional structure covers the main dimensions of training transfer goals, including facilitating learning, resource optimization, meeting expectations, intrinsic satisfaction, reputation among students, adaptation to changes, and scientific authority, which is consistent with the theoretical framework of TRGP (the two overarching goals of procurement and approval). This instrument can be used by faculty members and educational policymakers as a valid tool for evaluating and improving the training transfer process. However, conducting supplementary studies in different educational contexts and applying the instrument practically in real settings can help identify potential shortcomings and further enhance its accuracy and efficiency.

1. Limitations and Strengths

Despite having a coherent design, the present study had some limitations. Among the most important limitations was limited access to faculty members for sampling due to heavy workloads, educational and research commitments, and in some cases time constraints, which challenged the data collection process. Additionally, the use of self-report methods in completing the questionnaires may be subject to response biases. However, the strengths of the present study outweigh its limitations. This study is among the first to design and psychometrically validate a localized instrument for measuring training transfer goals among faculty members. The use of a mixed-methods approach (qualitative-quantitative), the application of valid psychometric frameworks, the participation of medical education and psychometrics experts, and the achievement of a coherent factor structure are among the most important strengths of this research. These features enhance the scientific credibility and applicability of the designed instrument.

Although some fit indices, such as RMSEA and GFI, fell within the borderline range, given the relatively small sample size (92 participants) and the complexity of the seven-dimensional model, these values are evaluated as acceptable. Future studies with larger samples can help improve these indices.

Declarations

Ethics approval and consent to participate

This study was approved by the Ethics Committee of Shiraz University of Medical Sciences (approval code: IR.SUMS.MED.REC.1404.334). All participants provided written informed consent before participation. The study was conducted in accordance with the Declaration of Helsinki.

Consent for publication

Not applicable. This manuscript does not contain any individual person's data in any form (e.g., images, videos, or personal details) that would require specific consent for publication.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. The study was conducted as part of the PhD dissertation of Ms. Fateme Tahmasebi Boldaji in Medical Education at Shiraz University of Medical Sciences.

Author Contribution

FTB: Conceptualization and framework of the research, drafting, collection of qualitative and quantitative data, analysis and interpretation of data, writing the initial draft of the article. HFD: Methodology, participation in data analysis and interpretation, collaboration in study design, critical review of the scientific content of the article, editing and approval of the final version. AAH: Supervisor and corresponding author; oversight of all stages of the research from design to writing, project management, continuous critical review, and final approval of the publishable version. MHK: Participation in qualitative data analysis, review of the initial draft of the article, provision of consultative comments in the process of instrument development and psychometric analyses. MMP: Collaboration in literature review, examination of intermediate versions of the article, approval of the final version. All authors participated in the discussion and interpretation of the results, reviewed and approved the final version of the article, and accept responsibility for all aspects of the work.

Acknowledgement

The authors sincerely thank all faculty members and experts who voluntarily participated in this study. We also appreciate the support of Shiraz University of Medical Sciences. This article is derived from the PhD dissertation of Ms. Fateme Tahmasebi Boldaji in Medical Education.

Data Availability

The datasets generated and/or analysed during the current study are not publicly available due to participant confidentiality and ethical restrictions (Ethics Code: IR.SUMS.MED.REC.1404.334), but are available from the corresponding author on reasonable request. The questionnaire developed in this study is provided as Supplementary File 1.

References

1. Lim DH, Morris ML. Influence of trainee characteristics, instructional satisfaction, and organizational climate on perceived learning and training transfer. Hum Res Dev Q. 2006;17(1):85–115.
2. Blume BD, Ford JK, Baldwin TT, Huang JL. Transfer of training: A meta-analytic review. J Manag. 2010;36(4):1065–105.
3. Baldwin TT, Ford JK. Transfer of training: A review and directions for future research. Pers Psychol. 1988;41(1):63–105.
4. Grossman R, Salas E. The transfer of training: what really matters. Int J Train Dev. 2011;15(2):103–20.
5. Steinert Y, Mann K, Anderson B, Barnett BM, Centeno A, Naismith L, et al. A systematic review of faculty development initiatives designed to enhance teaching effectiveness: A 10-year update: BEME Guide 40. Med Teach. 2016;38(8):769–86.
6. Chia C, Nadarajah V, Lim V, Kutzsche S. Transfer of knowledge, skills and confidence from a faculty development programme for health professions educators into practice. Med Teach. 2021;43(sup1):S46–52.
7. Holton EF III, Bates RA, Ruona WE. Development of a generalized learning transfer system inventory. Hum Res Dev Q. 2000;11(4):333–60.
8. Iqbal MZ, AlSheikh MH. Factors affecting the transfer of training to the workplace after a faculty development programme: What do trainers think? J Taibah Univ Med Sci. 2018;13(6):552–6.
9. Ajzen I, Kruglanski AW. Reasoned action in the service of goal pursuit. Psychol Rev. 2019;126(5):774.
10. Hamilton K, Phipps D, Schmidt P, Bamberg S, Ajzen I. First test of the theory of reasoned goal pursuit: predicting physical activity. Psychol Health. 2024;39(1):24–41.
11. Faraji Dehsorkhi H, Azizi Shamami M, Hayat AA, Rokni J. Predicting Training Transfer of Oxygen Therapy During COVID-19: Theory of Planned Behavior Application. J Holist Nurs Midwifery. 2023;33(4):250–8.

12. Dehsorkhi HF, Hayat AA. Knowledge sharing among medical teachers: the interplay between personality and the theory of planned behavior. BMC Med Educ. 2025;25(1):729.
13. Lindgren B-M, Lundman B, Graneheim UH. Abstraction and interpretation during the qualitative content analysis process. Int J Nurs Stud. 2020;108:103632.
14. Cecilio-Fernandes D, Sandars J, Gianotto-Oliveira R, Steenhof N. Teaching for transfer of learning in health professions education: AMEE Guide 176. Med Teach. 2025;47(8):1243–51.
15. Ahmed AI, Batt AM. Exploring faculty development initiatives in medical education in resource-limited settings: perspectives and challenges. BMC Med Educ. 2025;25(1):1501.
16. Gregory ME, Walker DM, Sova LN, Pfeil SA, Rothwell CD, Volney JJ et al. Improving Training Motivation and Transfer in Hospitals: Extension of a Conceptual Model. Adv Health Care Manag. 2021;20.
17. Nīmante D, Kokare M, Baranova S, Surikova S. Transferring Results of Professional Development into Practice: A Scoping Review. Educ Sci. 2025;15(1):95.
18. Steinert Y. Faculty development: from workshops to communities of practice. Med Teach. 2010;32(5):425–8.
19. Devi SSL, Abilash SC. Empowering Medical Educators: The Rising Importance of Faculty Development Programs in Modern Medical Schools. Ann Afr Med. 2025;24(4):707–11.

Figures

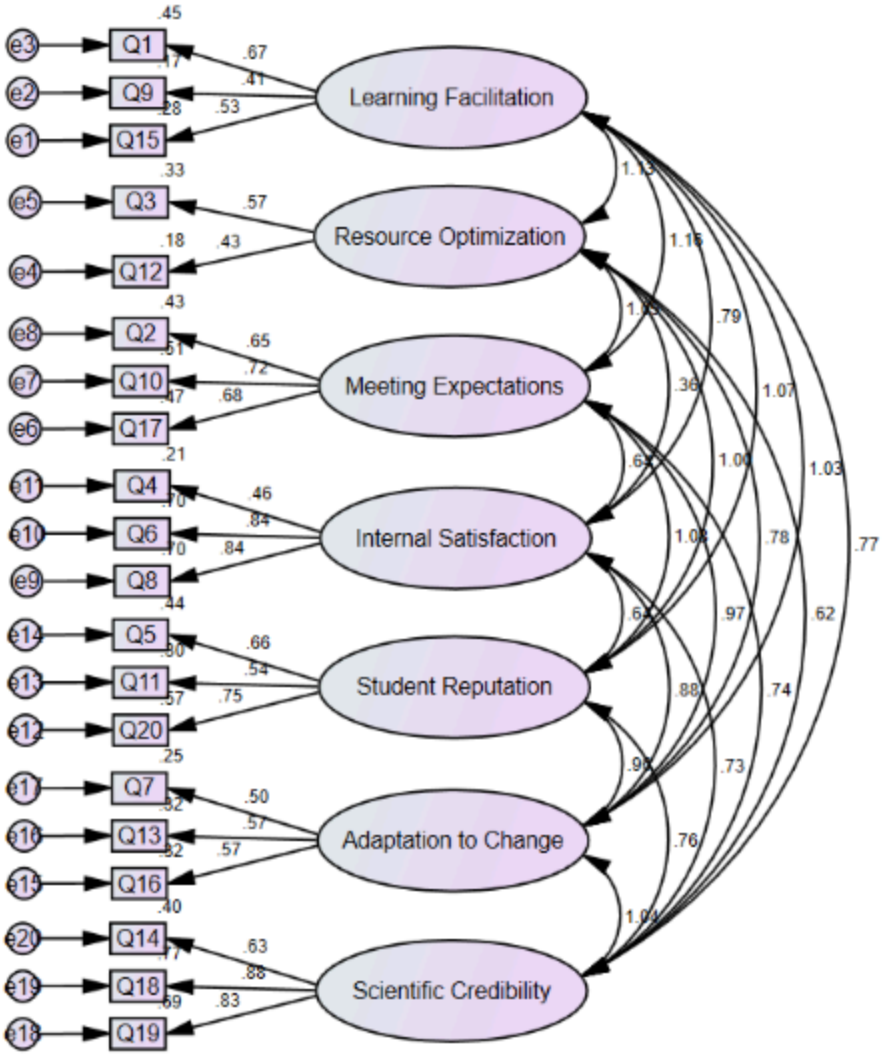


Figure 1

Model with standardized coefficients