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Designing a Feedback Questionnaire for the Evaluation of Postgraduate Courses

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We discuss the development of a feedback questionnaire for course participants at the Austrian Academy of Psychology (AAP). The proposed German language questionnaire is suitable for all kinds of courses in adult education, although it was developed primarily to be used in postgraduate courses of Clinical and Health Psychology. It is divided into three main components (P-E-T): "Participants" (interests, goals, meaningfulness of the course content, social conditions in the learning group and practical relevance), "Environmental conditions" (room, provider of the course, course material) and "Teacher" (social competence and skills in teaching). The dimensions meet the quality criteria of objectivity, reliability and validity and they are economic and useful. Therefore, the developed questionnaire is a sound possibility to gather the participants' attitudes and thus to maintain a high level of quality in the teaching process.

Keywords: Postgraduate training, evaluation, questionnaire.

The main goal of this study was to develop a sound feedback questionnaire for postgraduate courses in adult education. It was important that the questionnaire shows good psychometric qualities and it fulfils criteria of feasibility and practicability. Due to lack of motivation feedback questionnaires at great length are not filled out properly. Our target group in the Austrian Academy of Psychology (AAP) are mainly psychologists who do postgraduate in-depth courses and seminars in various fields of psychology (e.g., Clinical and Health Psychology, Traffic Psychology, etc.).

Postgraduate education has been gaining importance over the past decades, especially in the various fields of psychology and psychotherapy. From a review of the literature it was evident, however, that there is a lack of instruments for evaluating postgraduate courses on a scientifically sound basis. Frequently, evaluation questionnaires had been developed intuitively by a training institution and are used without examination of their psychometric qualities. However, such instruments cannot be expected to fulfil their purpose properly.

The use of proper evaluation or feedback instruments is an important asset to the quality of the educational programme and can substantially contribute to continuous improvement of the courses (Palmer, 2012; Wright & Jenkins-Guarnieri, 2012). An important asset of "good teaching" is the enhancement of the students' learning motivation. According to Self-Determination Theory (Deci & Ryan, 1993), intrinsic motivation can be achieved if an individual is willing and able to reach his or her goals by a certain action. Thus, motivation is being influenced by an individual's need for autonomy, competence but also by his or her need for social involvement or attachment (Deci & Ryan, 1993). All these factors contributing to learning motivation also depend on situational influences (Schaper, 2004) and on a teaching style focussing on a balance between challenging tasks and the skill level of participants (Csikszentmihalyi & Schiefele, 1993).

In summary, the important factors for education are the teacher (Kraft, 2005; Rindermann, 2001, 2003), the course topic and

content (Csikszentmihalyi & Schiefele, 1993; Deci & Ryan, 1993), the social conditions (Deci & Ryan, 1993; Schaper, 2004), the course participants (Kromrey, 1994; Spiel & Gössler, 2000; Rindermann, 2003), the proposed benefit (Rindermann 2001; Schulz, 2004), and the environmental conditions (Reinmann, 2010).

Evaluation or feedback instruments should fulfil the same criteria as psychometric instruments. In the first place they should be objective (i.e., their results should be independent of the person who submits them), reliable (i.e., they should measure the underlying construct as exactly as possible), and valid (i.e., they should measure what they intend to measure) (e.g., Bühner, 2009). Moreover, the instrument should operate economically (i.e., a questionnaire should be as short as possible) and in a practically useful way (e.g., Moosbrugger & Kelava, 2012). The scientific quality of an evaluation instrument is determined by the fact that results from empirical research had contributed to its construction (Mittag & Hager, 2000).

Therefore, the aim of the present study is, to review whether the developed questionnaire fulfils the relevant psychometric quality in regard to reliability (internal consistency) and validity (content and construct validity).

Method

AAP already used a feedback questionnaire that was developed on a "ad-hoc" basis with satisfactorily results, as reported in Panzenböck (2014). In order to improve this part of the feedback process, AAP decided to develop a feedback questionnaire on a scientific basis. The questionnaire was developed by modifying a questionnaire that had been developed by Rindermann (2001, 2003) for the use with undergraduate students at German universities ("Heidelberger Inventar zur Lehrveranstaltung sevaluation (Heidelberg Inventory for the Evaluation of University Courses) ", HILVE II). By thoroughly revising and adapting the HILVE II for the requirements of postgraduate education, we designed a questionnaire with 51 closed-ended items, one item regarding the overall rating of the course and three open questions (see Table 2). We chose to design a rather high amount of items because we wanted to shorten the questionnaire during the evaluation process by Exploratory Factor Analysis (EFA) and item analysis.

The questionnaire comprised 28 questions based on the HILVE II test, seven questions from an older version of our own form and 16 newly designed questions.

The revised and adapted form with 51 questions was filled out by 114 course participants, 89 (78.07%) of them were female and 18 (15.78%) of them were male. Seven persons did not provide their gender. The detailed data of mean, standard deviations and variance for all 51 questions are available in Panzenböck (2014). The standard deviation is used to quantify the amount of variation of a set of data values (Bland, 1996). Variance is a measurement of how far a data set is spread out (Loeve, 1977).

The sample was taken at the Austrian Academy of Psychology (AAP) in Austria. The participants were persons with a masters degree in psychology who are doing further education in clinical and health psychology in order to be allowed to work as a clinical and health psychologist by the Ministry of Health in Austria. The majority of the course participants in the academy are from Austria, but there regularly are participants from Germany, Russia, Croatia, Serbia and Hungary as well. The data on the nationality of the participants was not collected in this research because of the rather low group size (max. 15 persons) in order to protect the minorities in the courses because anonymity would be at stake otherwise. Further research could be conducted with participants from other ethnical groups and with students on different educational levels (bachelors, masters).

Results

To check the construct validity of the questionnaire we conducted Principle Components Analysis (PCA) with orthogonal rotation (varimax). This is a method to convert

a set of observations from possibly correlated variables into so-called principal components (linearly uncorrelated variables) – see Joliffe (2002). Prior to the extraction of the factors, we examined the suitability of our data. Therefore, we used the Kaiser-Mayer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett´s test of sphericity. The KMO criteria determines if a set of variables can be reasonably described by factors, which are sets of given variables. The KMO showed an estimate of. .77 (average), which verified the sampling adequacy. Bartlett´s test of sphericity $\chi 2 = 4079.65$, df = 1275, $p < .001$ indicated that correlations between items were sufficiently large for PCA. The Bartlett test (Bartlett, 1937) is a common procedure to determine this condition. 15 components had eigenvalues over Kaiser's criterion of 1 and in combination explained 77.27% of the total variance. 20 items were eliminated because they had low or multiple loadings on various components. Items with a factor loading < 0.6 were eliminated as well (Bortz & Döring, 2006).

In addition, we used the scree-plot in order to determine the number of factors to be extracted. The scree plot was slightly ambiguous and showed 2 inflexions that would justify retaining both factors 5 and 8 (see Figure 1). The scree plot was developed by Catell (1966) and is a graphical method to determine the optimal amount of factors for a PCA. In combination with Kaiser's criterion we choose the 8-factor solution as the most relevant ones.

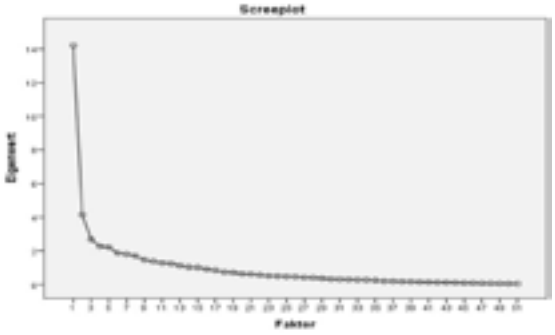

Figure 1. The scree-plot suggesting eight factors to be extracted

Item analysis was performed, but did not lead to a further elimination of items. The names of the eight factors extracted, their eigenvalues and percentage of variance explained are listed in Table 1.

Table 2 contains the data for the items that remained after the item reduction of the questionnaire took place.

Content validity is given because the dimensions of the form were developed on a theoretical basis and were operationalized afterwards. Discriminant validity is given because all correlation coefficients of the eight factors lie below 0.50, with only two exceptions in the correlation matrix with 0.552 and 0.580.

Reliability was examined using internal consistency (Cronbach's alpha coefficient) for the eight established factors of our questionnaire. It was developed by Cronbach (1951) and measures the relatedness of items on the same

Table 1. Cronbach's α, eigenvalues, and percentage of variance explained by the eight factors extracted

No.	Factor	Cronbach's alpha	eigenvalue	% variance	cumulated %
A	Environmental conditions	0.88	14.22	27.89	27.89
B	Participants	0.88	4.15	8.13	36.02
C	Social conditions	0.87	2.69	5.27	41.30
D	Teacher: competence of teaching	0.87	2.27	4.44	45.74
E	Teacher: social competence	0.73	2.21	4.34	50.08
F	Practical relevance	0.83	1.86	3.65	53.73
G	Teaching materials	0.76	1.80	3.54	57.27
H	Educational institution	0.83	1.70	3.32	60.59

Table 2. New AAP feedback questionnaire, including means, standard deviation (SD) and variance (SD) of the evaluation with 114 filled-out questionnaires

No.	Question / factor	sub-topic	origin	mean	SD	var.
A	Environmental conditions					
1	The rooms where the course took place were appealing	setting	1	2	.97	.94
2	The rooms where the course took place were adequate	setting	1	1.63	.74	.55
3	The rooms where the course took place were clean	cleanliness	1	1.50	.72	.52
4	The location where the course took place was well chosen	location	1	1.57	.84	.71
5	The rooms where the course took place were technically well equipped	Setting	1	1.73	.90	.80
B	Participants					
6	The course was fascinating for me	interestingness	2	1.41	.62	.39
7	The topic and the content was interesting for me	interestingness	3	1.41	.62	.39
8	The participation was rewarding for me	purpose	1	1.37	.57	.32
9	The course raised my interest in the topic	interestingness	1	1.51	.68	.46
C	Social conditions					
10	The participants contributed positively to the ambience of work in this course	group dynamics	1	1.18	.45	.20
11	I really felt well in this course	comfortability	1	1.25	.52	.28
12	There was a comfortable ambience of work in this course	ambience	1	1.12	.36	.13
D	Teacher: competence of teaching					
13	The teacher was able to transport the meaning of the content	competence of teacher	2	1.18	.40	.16
14	The teacher was well prepared	preparation	2	1.14	.37	.14
E	Teacher: social competence					
15	The teacher was oriented in a cooperative way	cooperative orientation	2	1.13	.41	.17
16	The teacher was friendly to the course participants	Social competence	2	1.09	.37	.13
F	Practical relevance					
17	I assume that the taught content is important in my professional life	importance	3	1.34	.61	.37
18	I assume that the taught content is useful in my professional life	benefit	3	1.36	.61	.37
19	I assume that the taught content is applicable in my professional life	Applicability	1	1.40	.63	.40
G	Teaching materials					
20	The teaching materials are suitable for a look-up	look-up	1	1.43	.69	.48

21	The teaching materials are designed appealingly	design	1	1.49	.76	.57
H	Educational institution					
22	AAP offers high quality in its courses	course quality	1	1.53	.91	.84
23	AAP is a competent educational institution	competence	1	1.32	.78	.61
24	AAP has got a high focus in service	focus in service	1	1.62	.95	.91
	Overall ranking					
25	If I had to rank the entire course with a grade, I would grade with the following:	overall ranking				
	Open questions					
26	I liked best in this course:					
27	I did not like in this course that:					
28	I have the following suggestions for improvement for this course:					

Items 1 to 24: possible answers are1 = fully correct, 2 = rather correct, 3 = rather not correct, 4 = fully not correct, 0 = answer not possible

Item 25: possible answers are 1 = very good, 2 = good, 3 = satisfactory, 4 = sufficient, 5 = insufficient

Item 26, 27 and 28 are open questions

scale. These values range from 0.73 to 0.88 (see Table 1). They are above the desired minimum level of 0.70 and are thus acceptable.

Hundred persons answered the question regarding the overall rating of the course. More than 85 % of the persons chose to answer “very good” or “good”. Fifty-three persons (46 %) used the open questions at the end of the form. 49% of the statements were used to note positive things about the course, 23% of the statements gave ideas for improvement and 28% of the statements were about things the participants did not like in the courses.

A condensed, report based on the individual feedback given in each course was forwarded to the respective teacher as a means of feedback so that he or she can improve their work based on the results and individual comments. In addition, AAP evaluated the condensed reports as well to ensure the high quality of the lectures by the teachers and also to be able to maintain a high level of customer satisfaction regarding the environmental conditions and other possible issues that were reported by the feedback system.

Further research might also derive the correlation of the feedback results with academic achievements of the participants. This was not done in our present study, because the success rate in our respective courses was almost 100%.

Discussion

The result of our study is the new questionnaire as provided in Table 2. We were able to design a compact feedback questionnaire with 28 questions in total that describe eight important factors that are relevant for courses in postgraduate education: environmental conditions, participants, social conditions, teacher’s competence of teaching and teacher’s social competence, practical relevance, teaching materials, and educational institution. We also were able to show that the proposed factors reported in the literature are of practical relevance, although some of the factors changed because of the results of our EFA.

Based on the results of this article, we can establish three main components (Participants – Environmental conditions – Teacher) that are important for feedback questionnaires for postgraduate courses. They can be divided into the following categories:

Participants (interests, goals, meaningfulness of the course content, social conditions in the learning group and practical relevance)

Environmental conditions (room, provider of the course, course material)

Teacher (social competence and skills in teaching)

The design of the feedback questionnaire was done in a way that it can be used in every field of adult education. Although the current study focuses on the use in postgraduate courses for psychologists, we encourage the use of the developed feedback questionnaire in other areas of education with an accompanying evaluation.

The importance of the research is that the feedback questionnaire is able to distinguish between different important factors in education, namely environmental conditions, participants, social conditions, teacher: competence of teaching and social competence, practical relevance, teaching materials and educational institution. This is an evolution in regard to other existing feedback questionnaires, e.g. the HILVE II (Rindermann 2001 & 2003) , which only focus on some, but not all of the important factors.

While using the questionnaire after the research in the field, it was observed that mean values at or below 2 corresponded with a substantially higher degree of written comments on the questionnaire and were a very good indicator of unsatisfactorily conditions in the courses that were discussed in detail at the academy as to improve the work for the future.

Further research should include follow-up studies as well as translations of the questionnaire into other languages.

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