WHAT FACTORS AFFECT LEARNING TRANSFER? - ACADEMIC DEVELOPMENT IN PERSPECTIVE

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Introduction

Academic development's objective is to foster teaching practice to secure effective student learning. However, progress regarding this transformation is difficult to capture in institutional evaluations or reports of effectiveness because academic development (AD) is multi-layered and multi-faceted (Stefani, 2011). The need to compile evidence of effectiveness goes beyond the demonstration that AD practices improve teaching, but that the effects can be seen on students' learning. Relevant research taking this complexity into account has been conducted in recent years (e.g., Rust, 1998; Kezar & Eckel, 2002; Gibbs & Coffey, 2004; Norton *et al*., 2005; Lindblom-Ylänne, Trigwell, Postareff, Nevgi, & Ashwin, 2006; Postareff, Lindblom-Ylänne & Nevgi, 2007; Stes, Clement and Van Petegem, 2007; Stes, Min-Leliveld, Gijbels & Van Petegem, 2010, Stefani, 2011).

Taking into consideration this growing field of literature about the evaluation of AD programs, its effectiveness and possible impact on the conceptions and approaches about teaching and learning or even its impact on students' learning, this paper presents the main outcomes of a research taking an even broader perspective to capture the *transfer potential* of academic development activities. Based on a previous study (Feixas & Zellweger, 2010), a research has been carried out to analyze three groups of factors conditioning academics´ learning transfer in Spanish Higher Education Institutions (Feixas, et al. 2013a). namely the opportunities offered by the *environment* of the organization, the *design of teaching training* -offered by Educational Development Units or similar services- and *individual factors* influencing the transfer of learning into the classroom.

The state of the art on academics´ development transfer of learning

Literature on learning transfer mainly comes from research in the corporate sector, as it is reflected next. Transfer is understood as to the degree by which the participants apply the knowledge, abilities and attitudes required in a specific working context (Baldwin & Ford, 1988). In Olsen's words (1998) "transfer is the evidence that what was learned is actually being used on the job for which it was intended" (p. 61). In the past, assessing training effectiveness often has entailed using the four-level approach developed by Kirkpatrick (1998) whose evaluation model essentially measures reaction, learning,

application and business impact. All these measures have been widely recommended for full and meaningful evaluation of learning in organizations, although the application of such an encompassing perspective increases complexity and usually cost. Along with his development, Holton's evaluation model (1998, 2000, 2003) provides new evidence by means of his Learning Transfer System Inventory (LTSI). Additionally, the work of Burke and Hutchins (2007), building from Baldwin and Ford (1988) offers a sound review and a solid model with a clear view of the influential variables including elements, from a more pedagogical approach such as the role of the trainer or the training timing. More recently, Pineda-Herrero, Quesada & Ciraso (2011) create the FET model (Factors for the indirect Evaluation of Training Transfer) in the specific field of the Spanish public administration. Finally, it is to mention the general reviews of Blume et al. (2010) and the specific review of De Rijdt et al. (2013) on impact of staff development on transfer of learning. The last two reviews (Blume et al, 2010 and De Rijdt et al. 2013) show a vision of the moderators that influence transfer and agree in maintaining the classification of transfer factors into the organizational factors, individual factors and training design factors.

Despite theoretical reviews, there is a lack of research evidences on the factors influencing learning transfer of faculty development programmes in Higher Education.. Feixas and Zellweger (2011) contextualized Holton *et al*. (2000) tool to the HE context and built, with the authors permit, the LTSI-HE (Learning Transfer System Inventory for Higher Education). The instrument was used to analyze the potential of academics' learning transfer in initial training programs of the University of St. Gallen (Switzerland) and Universitat Pompeu Fabra (Catalonia). In this research, learning transfer was understood as the effective and continued application in the workplace of a set of knowledge, skills and attitudes learned in the context of academic development.

The results from the Spanish-Swiss research (Feixas & Zellweger, 2011) were used as a pilot test of the tool, which showed some theoretical limitations. On one hand, the implicit model in the LTSI and the LTSI-HE comes from a training model used in the corporate sector and therefore linked to the development of clearly defined skills for a rather specific performance at the workplace. Items had to be adapted to fit the application of the learning acquired in academics' teaching training. Moreover, LTSI-HE items were validated by experts and academic developers of different Educational Development Units suggesting changes in the items to better fit the context of higher education training' transfer. Therefore, since the direct translation of the LTSI-HE version (72 items) did not allow capturing the reality of AD programs to a satisfying degree in the Spanish context; a new tool was created under the auspices of the Spanish Academic Development Network (REDU). The research took place between 2011 and 2013 (Feixas, et al. 2013a).

Method

The initial model about the Transfer Potential of Academic Development (TPAC) contained 10 factors organized into: factors related to the individual, factors related to the environment and factors related to the training design (see Figure 1):

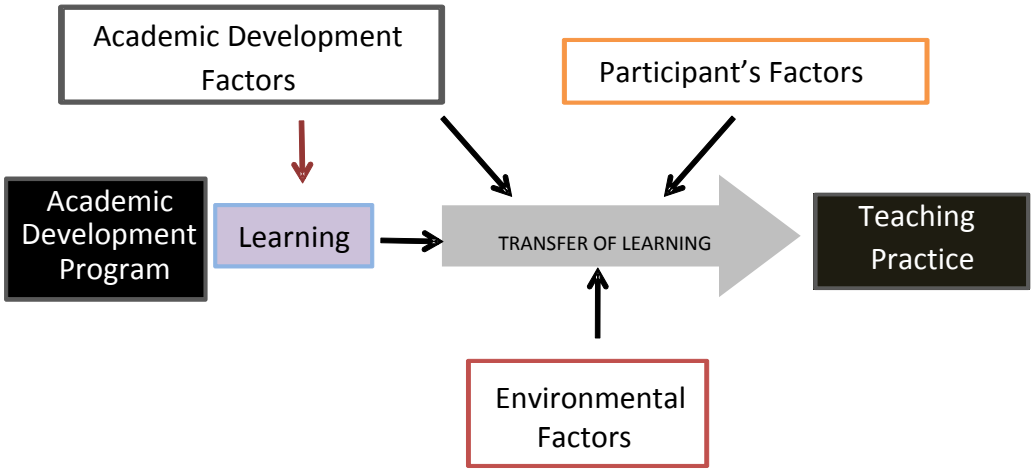

Figure 1: Initial model of Transfer Potential of Academic Development (TPAD)

Theoretically, the 10 factors showed above are defined as follows:

Academic Development factors:

- Training design :it is understood as the extent to which AD programs or activities are designed to prepare academics in the skills needed to teach in Higher Education, as well as to which the AD program is designed to encourage participants to make changes, bringing new ideas and experiences, and allows to practice new learning. It includes the degree in which trainer/developer is used as a model using clear examples, similar to the learning environment, and activities and exercises show how to apply new knowledge and skills (Richman-Hirsch, 2001; Broad & Sullivan, 2001; Nijman et al., 2003; Brown, 2005).
- Learning degree: it refers to the perception of participants and awareness of thetheextent of learning acquired through AD programs or activities (Rouiller & Goldstein, 1993; Xiaoi, 1996; Pineda & Quesada, 2013).

Participant's factors:

- Self-efficacy: academic's general belief that they can change its behavior and teaching practice if they want to, as a result of the participation in AD programs

or activities. More specific, it is about how participants feel capable, confident and self-sufficient to implement new strategies in their teaching and they can overcome obstacles that limit the use of new knowledge and skills (Gaudine & Saks, 2004; Chiaburu & Marinova, 2005; Yamkovenko & Holton, 2009; Prieto, 2009).

- Personal resources to transfer: it is understood as to how participants establish priorities and have time, energy and mental capacity to carry out the necessary changes that allow them to transfer what they learned in their teaching practice. This factor refers the extent to which the workload, timing, personal dedication, and stress level facilitate or hinder the application of new learning into the classroom (Holton, Bates &Ruona, 2000; Tomàs, Castro & Feixas, 2012).
- Participants' expectations to transfer: it refers to the direction, intensity and persistence of participant's efforts to use skills and knowledge in a teaching environment which had been acquired in AD programs or activities. It explores how much academics believe that the effort devoted to transferring learning will lead to changes in teaching performance (improve teaching, student assessment); it also refers to the expectation that changes would be recognized and valued by the institution (Axtell et al., 1997; Chiaburu & Marinova, 2005; Moreno, 2009).

Environment factors:

- Environment resources to transfer: it refers to resources provided to participants to encourage transfer of learning. It involves an institution that facilitated to academics opportunities to apply new learning, needed resources to use new skills (equipment, information, materials, infra-structure), and adequate human and financial resources (Ford et al, 1992; Clarke, 2002; Lim & Morris, 2006).
- Participant's supervisor support: this factors defines the extent to which participant's supervisor(study programme's coordinator) supports the transfer of learning, whether he or she encourages, shows interest, offers support, and follows the transfer activities (Tziner, Haccoun & Kadish, 1992; Quinones, Ford, Sego & Smith, 1995; Smith-Jentsch, Salas & Brannick, 2001, Nijman, 2004).
- Team's teaching culture: it refers to the support provided by reference group to enable the application of new learning in the classroom. It includes a positive climate and a collaborative culture that provides participants with the necessary support to transfer new skills (feedback from the group about their teaching, exchange of experiences, content, teaching materials, among others)(Holton, Bates & Ruona, 2000; Chiaburu & Marinova, 2005; Hawley & Barnard, 2005; Jenert et al., 2009; Feixas & Quesada, 2012).
- Change resistance: it is understood as the extent to which the existence of group norms is perceived by participants as a resistor or they discourage the transfer of learning. It includes groups' resistance towards change, the willingness to strive for change, and the degree of support for people using the techniques learned in AD programs or activities (Holton, Bates & Ruona, 2000).
- Students' feedback: it refers to the academics' beliefs that students' feedback about their teaching will encourage their application of new learning in the

classroom, and the extent to which students appreciate the innovation in classroom (Feixas & Zellweger, 2011).

After developing the FADTL model, we built the questionnaire (TPAD) which contains 54 items representing the 10 factors defined previously. The questionnaire contains additional items to describe the participant's profile.

Each factor is formed by five items minimum; items are built based on a 5-point Likert scale, being the meaning: 1-totally disagree, 2-disagree, 3-indifferent, 4-agree, 5-totally agree. Generally, items that compose a factor are written in a gradual form, suggesting more or less support to learning transfer. The design of each item was followed by an internal validation of the overall questionnaire by the members of the research group. The extension of five items per factor aims to guarantee a powerful factor analysis. Nine negative items were reversed during the analysis. The QTPAD was administered both in paper-and-pencil and on-line version.

Sample and data collection

We used an intentional sample, contacting Academic Development Units from all Spanish public universities (N=30). 18 universities agreed to participate in the study resulting in 1,026 questionnaires from academicswho participated in one of the different 81 AD training activities. Data were collected from March to December 2012. The questionnaire was distributed and collected at the end of the AD program or activity.

Describing the sample based on the profile variables, there are more men (52.7%) than women, and the range age the highest concentrationof teachers are: 31-35 years (19%), 36-40 years (17.8%) and 41-50 (14.3%). Most participants report of less than five years of teaching experience (33.9%). With 30.9% most participants are from Engineering followed by Socials sciences and Law (22.1%). Overall, there is a variety of educational groups represented by occupational category but most of them are Associate Professors or senior lecturers (28.5%).

Besides, the AD program where the questionnaire was applied had different time duration ranging from workshops of 4 hours to AD programs of 500 hours; every Academic Development Unit selected them individually. Included in the study are 73.8%courses of short duration (4-12 hours), 5.1% medium duration (13-49 hours) and 21.2% had long duration (minimum 50 hours). Only seven out of 18 universities applied the questionnaire to a complete academic program, six of which were initial training programs addressed to new teaching staff and one was a continuous extensive development program for any faculty member.

Regarding taught training competencies (GIFD, 2011), most programs (53.3%) addressed the 'design of the teaching-learning process', while other AD modules

addressed other skills: technological skills (18.8%), communication and linguistics skills (10.8%), and personal development (2.1%). We compiled under the name of 'integrative model' the particular program which addressed all teaching competencies necessary to teach effectively (14.9%).

Data analysis

To carry out the analysis of the data collected in this study we performed two kind of analysis: 1) descriptive and inferential analysis by profile variables to describe the sample and major results and 2) validation of the model through an Exploratory Factor Analysis (EFA) and a reliability analysis by Cronbach's alpha value.

Results

As a result of the Exploratory Factor Analysis, the initial factors in the theoretical model were regrouped to eight factors, resulting ina new factorial structure. The questionnaire has 50 items and according to the factor loadings of the items each factor can be labeled as shown in table 1.

Factor	% variance explained	Items related
Factor 1: TRAINING DESIGN AND ACQUIRED LEARNING	22.1%	It includes perception of the level of learning acquired through AD program or activity, as well as beliefs and expectations that they can apply to improve teaching and to allow them to practice new learning. Also, the extent to which AD program or activity was designed so the participant can apply learning.
Factor 2. STUDY PROGRAM COORDINATOR'S SUPPORT	9.9%	This factor defines the extent to which the study program coordinator, as the participants' main responsible person for teaching, supports the transfer of learning, encourages, shows interest, offers support, and monitors transfer.
Factor 3. WILLINGNESS TO CHANGE[1]	4.5%	It is understood as the willingness to strive for change, from identifying strengths in the department, school or university, to transfer the new learning.
Factor 4. ENVIRONMENT RESOURCES	3%	This factor defines resources, facilities and support provided to participants to transfer new learning.
Factor 5.	2.6%	It refers to as how participants believe that

[1] This factor refers to the theoretical dimension "chance resistance" but, in order to clarify the graphic interpretation, we changed the scale polarity.

STUDENTS' FEEDBACK		students' feed-back about their teaching will increase application of new learning in the classroom.
Factor 6. INSTITUTIONAL RECOGNITION	2.4%	It refers to the expectation that changes would be recognized and valued by the institution.
Factor 7. TEAM'S TEACHING CULTURE	1.9%	It refers to the support and collaboration provided by the participants' reference group to enable application of new learning in classroom.
Factor 8. PARTICIPANT'S PERSONAL ORGANIZATION	1.9%	This factor refers the extent to which workload, timing, personal dedication, and stress level facilitate or hinder the application of new learning into the classroom.

Table 1. Factors obtained after the validation of the QTPAD.

Once the composition of factors was known, the reliability of the scales for each factor and for the overall instrument was analyzed using Cronbach's alpha. The overall instrument shows an Alpha of .091.

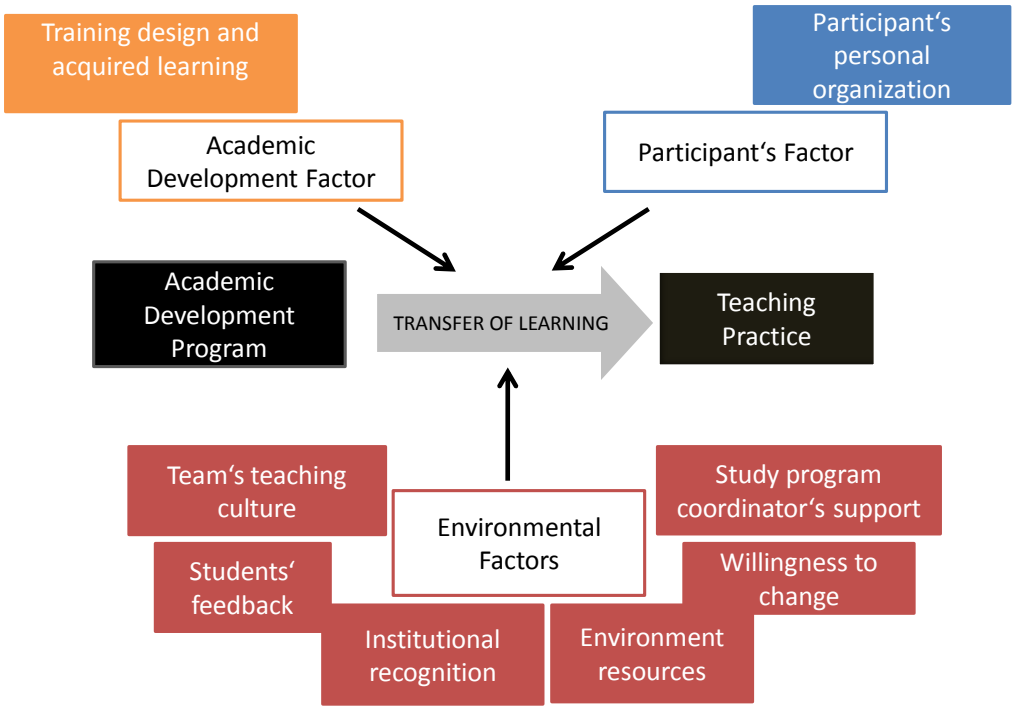

Figure 2: Validated model of Transfer Potential of Academic Development

We present the results of the QTPAD, according to validated factors. The results are a barrier to transfer if the factor's mean scores below 2; a risk to transfer if the mean scores from 2 until 3; a weak facilitator if the score is between 3 to 4- or a strong facilitator if is 4 or more. Descriptive statistics by factors can be seen in the following graph:

Factors	**Mean**	**Std. Deviation**	**Transfer factor facilitation's role**
Training designand acquired learning	4.1	.56	Strong facilitator
Study Program Coordinator's support	3.1	.86	Weak facilitator
Willingness to change	2.9	.77	Risk of barrier
Environment resources	3.0	.78	Weak facilitator
Students' feedback	3.4	.67	Weak facilitator
Institutional recognition	3.9	1.01	Weak facilitator
Team's teaching culture	3.2	.91	Weak facilitator
Teacher's personal organization	2.8	.88	Risk of barrier

Table 2. Descriptive statistics and transfer factor role.

The factor labeled as "Training design and acquired learning" collect items related to training design and self-efficacy. The mean equal to 4.0 indicates that this factor is a

strong facilitator, which means that theAD programs and activities have proved to be well-designed and implemented. Also participants' self-efficacy is perceived as high.

The factor "Institutional recognition" has a high mean (3.9), near to the level of a strong facilitator, this means that this is a relevant transfer facilitator. Participants believe that their efforts to improve learning would be recognized and valued.

The "Students' feedback" (3.4) is a weak facilitator, this result can be understood in the sense that the student's opinion has a relative importance with regard to the implementation of new teaching practices. "Team's teaching culture", "Study program coordinator's support" and "Environment resources" are weak facilitators (3.2, 3.1 and 3.0 respectively).

"Teacher's personal organization" (2.8) is an indicator of risk of barrier to transfer. From that we can interpret that barriers to transfer are in the trainee's potential not in the environment. It is likely that academics set other priorities(mainly undertaking research and publishing) before planning the transfer of what has been learnt in the AD activities and, therefore, the acquired knowledge and skills have a limited application and impact into the pedagogical practice.

"Willingness to change" (2.9) is a weak risk, near to the level of weak facilitator; participants considered that the willingness to change can facilitate the innovation in classroom.

It is important to mention that the 18 participating universities are less than half of all universities in Spain and it is a considerable proportion useful for the validation of the tool. The results and conclusions should although be taken with caution because the academic development units selected those training activities being carried out in a limited time period (March to July 2012) and most decided to apply it to the shorter development activities (such as courses, workshops, seminars, modules that are mostly part of larger AD programs). In that regard, results did not differ too much as to the difficulty of transferring learning from short development activities. Additional results can be found in Feixas et al. (2013) and will be presented in the conference setting.

Final discussion

Since the first Swiss-Spanish research, the effort to raise evidences from research on the factors influencing learning transfer potential has progressed and resulted in a valid instrument. It is considered to be an important contribution to indirectly evaluate training impact or the third step in Kirkpatrick's model. This instrument has been created to identify the factors that condition AD learning transfer the Spanish context; which could work well in other university contexts. In fact, a research is being carried

out in Chile using this tool and plans are made to revise it again to be applied in the Swiss context. It is interesting to mention that is also going to be contextualized to study the transfer potential of secondary school teachers' training in Catalonia. The instrument, therefore, provides important information as to the factors conditioning the impact of learning, but new evidences must complete this sort of studies.

The study demonstrate that except of two factors (teachers' personal organization and training design), the data show a clear trend towards average values, which can be interpreted that most factors are neither facilitators nor limitations of learning transfer. Efforts in the field of teacher education generally require a strong commitment by institutional leaders at all levels (coordinators, departments, faculties) in order to raise status for teaching and consolidate cultural change. This data provides evidence of the broad area of improvement that is still pending in the field of teaching and learning in Spanish universities and how much remains to be done, moreover when European directives aim decisively in this direction (EUHighLevelGroup, 2013).

In any case, numerous questions arise along with these data. What model of academic development is intended to promote transfer? How can academic development support the development of a supportive organizational climate helping academics to develop in all three basic areas in which an academic, namely, research, teaching and management? How, when and with what resources and requirements should we develop such professional and personal itinerary? How sustainable is an approach to quality teaching and learning which rests on the naïve idea of timely development of skills without being involved in more complex organizational, business, professional, institutional or cultural areas ?

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