TWELVE TIPS

Twelve tips for increasing transfer of training from faculty development programs

STEPHEN L. YELON, J. KEVIN FORD & WILLIAM A. ANDERSON
Michigan State University, USA

Abstract

Physicians serving as faculty in medical schools are taught medical skill and knowledge, but are usually not taught how to be competent teachers, researchers and leaders. Medical schools can provide the appropriate training for academic faculty by providing faculty development. However, to accomplish the purpose of producing competent teachers, researchers and leaders, faculty development programs must be designed to foster transfer of training, the use on the job of what is learned in instruction. Based on experience and empirical research, we provide tips as to how to design and conduct faculty development programs that will enable and motivate medical school faculty to use the skills and knowledge they learn as academic physicians.

Introduction

Physicians who choose a career in academic medicine are generally well prepared clinically to serve as faculty; however, they may not be as well prepared to be successful in their new academic roles (Steinert et al. 2006). Medical schools have provided training in essential academic skills through faculty development programs. Steinert et al. (2006) define the term faculty development as the "broad range of activities that institutions use to renew or assist faculty in their academic roles". Medical schools have largely focused faculty development efforts on new faculty, addressing the knowledge, skills and attitudes necessary for instruction, scholarship, and administration (Bland et al. 1990). Faculty developers have taught these skills via mentoring, self-directed learning initiatives, web-based learning, workshops, and full or part-time fellowship programs (Steinert 2000).

The Michigan State University's (MSU) Primary Care Faculty Development Program is one example of a successful national on-campus/at-home, part time faculty development fellowship program that ran from 1978 to 2012. The overall goal of the program was to prepare new primary care physicians for full-time careers in academic medicine. The fellowship curriculum addressed the basic roles of instruction, research, and leadership and also included other domains such as the use of computer technology, and adjustment to working in the academic community. For each role, there were objectives for all participants to attain. For example, for instruction, fellows, as the program's participants were known, were to plan and present a lesson, teach a psychomotor skill, give feedback, and carry out selected clinical teaching approaches.

Six hundred and one academic physicians from medical schools and primary care residencies completed this fellowship. Fellows spent a total of four weeks at MSU learning and practicing teaching, research or leadership skills in workshops, seminars and small group activities. At their home institutions, fellows completed assignments and projects to practice new skills or to demonstrate their attainment of program objectives.

The MSU faculty development fellowship program used both formative and summative evaluation strategies. Fellows consistently expressed high satisfaction with their learning. Generally, fellows stated they were able to master most, if not all, of the program learning objectives, and, subsequently, supervisors noted positive changes in fellows' faculty behavior.

One of the most challenging outcome evaluation questions for the MSU Faculty Development Fellowship Program was a question of transfer of training, that is, the degree to which fellowship program graduates used at their home institutions the methods of instruction they acquired. Transfer is defined as the extent to which trained knowledge and skills are applied to the work context. Systematic reviews of training transfer research have identified three major factors affecting the extent of transfer to the job: trainee characteristics (e.g. trainee motivation to learn), training design features (e.g. incorporation of learning principles), and work environmental factors (e.g. supervisory support for training) (Baldwin & Ford 1988; Blume et al. 2010; Grossman & Salas 2011).

MSU fellowship program faculty systematically investigated the transfer of instructional skills from the MSU program over the past 15 years (Yelon et al. 1997 2004, 2013; Sleight & Reznich 2006). In brief, the researchers uncovered a continuous, dynamic, transfer process whereby individual fellows perceived the utility of a method learned in the program, became ready to use it, applied it, and learned from its application. Fellows decided to use a method when they perceived its credibility, practicality and need. Immediately, and over years, in different ways and in varied contexts,

Correspondence: Stephen L. Yelon, Office of Medical Education Research and Development, Michigan State University, East Fee Hall, 965 Fee Road Room A214, East Lansing, MI 48824-1316, USA. Tel: +517 353 3454; Fax: +517 353 3146; E-mail: yelons@gmail.com

fellows applied behavioral skills such as presenting a lecture, teaching a psychomotor skill, and giving feedback, as well as intellectual skills, such as planning, analyzing, and evaluating instruction. Fellows reported continuing to use what they learned because their well-designed plans were effective in addressing recognized institutional needs, and because they were supported and rewarded for application.

Researchers reviewing transfer, including the articles about MSU fellows, proposed that transfer is a set of complex, gradually emerging processes taking place before, during, and after training (Ford & Weissbein 1997; Yelon & Ford 1999). Accordingly, faculty developers must strive to incorporate strategies and principles that are effective in facilitating transfer prior to, during, and following a training experience.

Thus, the purpose of this article is to present strategies for preparing for and conducting medical faculty development programs that will enhance transfer from instruction to work. The strategies are designed to develop competent and motivated participants who can apply what they have learned, as well as to continue to learn, after the program is over. The tips are oriented toward the design of longitudinal development programs for medical faculty such as on-campus/at-home fellowships. Although designers will have no trouble applying most of the tips to any faculty development program, they may have to adapt or forego some tips when planning a program of smaller scope. We illustrate the tips with examples of instructional skills taught to physicians. However, we believe the tips apply to other professional skills, such as research and leadership, and to other professions as well.

The tips are based on the research conducted by MSU fellowship faculty about the ways medical fellows transferred instructional skills they learned to their work, reviews of empirical literature on transfer (Baldwin & Ford 1988; Baldwin et al. 2009; Grossman & Salas 2011), theoretical articles on transfer (Broad & Newstrom 1992; Yelon & Ford 1999; Yelon & Sheppard 1999; Broad 2005; Ford et al. 2011) and knowledge we gained from thirty three years of experience in directing, teaching and evaluating the MSU Primary Care Faculty Development Program.

Tip 1

Assess development needs

Researchers assert that participants' perceived relevance and utility of an instructional program's content has a strong influence in producing transfer (Grossman & Salas 2011). For example, MSU medical fellows said they transferred what they learned in the program because they believed they needed the skills taught to do their work well (Yelon et al. 2004, 2013). One fellow, who needed to improve his medical skills course reported that he knew immediately that he would apply one of the program's instructional goals: able to systematically teach psychomotor skills. Another resolved to apply lesson-planning skills after practice when he realized he could do the same with his students.

Thus, begin designing a transfer-oriented faculty development program by conducting a needs assessment of faculty participants (Grant 2002). For example, program planners may

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investigate what potential participants do to meet clinical and academic expectations. Planners may search for the competencies that participants need to be successful in those academic roles, and, especially the competencies they lack. Fortunately, several researchers have provided, as a head start, lists of essential faculty competencies to consider (Bland et al. 1990; Harris et al. 2007; Srinivasan et al. 2011).

Needed competencies become program goals: the statements that learners will use to judge personal relevance, and that program staff will interpret to design transfer-oriented, learning experiences. In addition, program planners can take into account the work conditions and constraints they find that are likely to affect participants' attempts to transfer new skills after the program.

Investigative strategies include direct observation, surveys, focus groups, and interviews. For example, one may ask participants on a survey to assess their current level of competence for each academic medical skill, as well as their interest and need to learn more. Supervisors may add their observations as well.

Tip 2

Communicate the expectation of application

To foster transfer, convey to participants that they are to apply at work what they learn from the program. Broadcast this message at every possible opportunity: improvement of academic medicine requires application of knowledge, skill and attitude; and application takes time, hard work, and a little help from friends. Specifically, state that session attendance or participation alone is not acceptable. Participants must provide evidence of the successful application of learning.

For instance, program staff may remind participants of the need to apply, by starting every session with specific objectives that are related to real world roles. They may communicate expectations of transfer in their exposition as: "Here's something you can use when presenting at noon conferences as I did when..." Staff may continue by conducting simulation exercises of that performance. Further, to account for differences in participants' duties and work environments, one may convey, by statement and example, permission to adapt methods to their specific circumstances.

Tip 3

Secure support for application

The term support, in the context of transfer, refers to the encouragement and the time and physical resources given to participants to motivate and enable them to apply what they learn. Researchers identify support as a crucial factor in promoting transfer, both in the short and the long run (Baldwin & Ford 1988; Broad & Newstrom 1992; Sleight & Reznich 2006; Grossman & Salas 2011; Yelon et al. 2004, 2013). Those participating in a faculty development program need the support of their colleagues and especially of their supervisors.

Participants in lengthy programs must spend considerable time away from their everyday duties. Thus, participants may encounter resistance from colleagues, and they may become discouraged from spending time applying what they have learned. Therefore, before the onset of the program, gain formal agreement from supervisors and administrators for released time and for allowing attempts at perfecting new approaches, both during and after the program. Consider a phone or live conversation about needed support between a participant, a supervisor and a program staff member, followed by a signed document attesting to the aid promised. As to support from coworkers, teach participants how to gain and maintain help and encouragement from colleagues within and outside their own institutions. Monitor adherence to the agreement by inquiring and intervening if needed.

Tip 4

Prepare instructors to teach for transfer

To prepare to teach for application, instructors in a faculty development program have to take into account two major factors influencing transfer, that is, participants' personal characteristics and work environments (Baldwin & Ford 1988). Program instructors also must be able to design a program to create instruction that learners *need*, will be *able* to use and will *accept* – the third major factor influencing transfer.

First, instructors must know their audience's needs, duties and work conditions. To gain that knowledge, instructors can study the results of their program's needs assessment. To collect specific information relevant to their instruction, instructors may contribute questions to the assessment.

Second, instructors must know methods that their participants could use, given their needs and work context. Hence, based on their research and experience, instructors have to know an assortment of practical, effective methods that can be broadly applied or specifically adapted.

Third, participants have to perceive their program instructors as believable so as to accept the methods they propose. As a case in point, MSU fellows reported that they decided to apply ideas taught because they believed the program faculty when they said the methods would be effective (Yelon et al. 2004). To create believability, instructors could, for example, reveal their relevant professional experience and accomplishments when introducing themselves and using personal examples and cases. Further, to show their extensive knowledge of a topic, instructors could simplify what might otherwise be complex phenomena.

Tip 5

Teach principles and methods

Methods are the ways of doing something, while principles explain how or why something works or happens. For example, at the start of a lesson, an instructor may use the motivational method of making a statement or presenting a case to show participants when they will use the lesson's content and what they will accomplish. In contrast, the principle of meaningfulness explains why and how the motivational method works: to motivate students to learn, relate lesson content to the learners' experiences, interests and aspirations (Yelon 1996).

Yelon et al. (1997) reported that before transfer, fellows in the MSU program engaged in two processes: (1) deciding to use a method and (2) preparing to use it. By learning principles of instruction, fellows were convinced that methods would work. By learning the methods' steps, fellows were preparing to transfer.

We recommend teaching principles first so participants will make logical choices of methods. Accordingly, program planners select and define principles that explain how or why the methods to be taught should work. Program instructors explain how using those principles will be of benefit: to justify a method, adapt the approach, trouble-shoot unsuccessful attempts, and create new techniques. Instructors illustrate each principle using cases set in familiar work contexts, and in each case, clearly accentuate the cause, relationship, and effect. After an explanation of each principle, instructors demonstrate an application and ask participants to explain how the principles were operating.

Then, instructors teach methods that fulfill needed competencies, such as how to create a motivational attention-getter according to the meaningfulness principle. After justifying each method's relevance and utility, instructors describe and demonstrate its steps, and provide practice and feedback.

Tip 6

Motivate to apply

Yelon et al. (2004) reported that fellows in the MSU program decided to apply what they learned about teaching when they perceived the content as practical, effective, and needed. Accordingly, learners will decide to use an approach when they believe: "I can employ this method", "I believe this method will work" and "I must use this method to get what I need" (Yelon et al. 2004, 2013). For example, learners might decide immediately to use the One Minute Preceptor approach if they see it as easy to use, likely to work, and as likely to fulfill an important clinical teaching need.

To produce perceptions of credibility, practicality and need, program faculty must describe evidence-based and meaningful reasons for use of methods taught and must provide examples of application. Faculty must demonstrate methods fluently and clearly, present convincing research evidence of efficacy and efficiency, and provide realistic, challenging, active practice leading to success. For example, one technique to promote application is to show where, when, and how learners are likely to make use of the methods to be learned. Another is to show what the rewards will be for proper use and what the unfortunate consequences will be for non-use or improper use.

Tip 7

Provide tools to aid recall and application

Yelon et al. (1997, 2004, 2013) found that participants in the MSU program applied new ideas immediately, and weeks, months, and even years later. Fellows spoke of using instructional aids that converted to job aids, to provide reminders and offer specific guidance to apply. Fellows used program session notes, slides, checklists, decision aids, charts, lists of principles or skill steps, diagrams of processes, annotated models, and mnemonics.

For example, consider how the following combination of a novel name, a clear definition, a diagram, a poem, an outline of a plan, all on a card, served to help fellows remember and apply what they learned. In teaching goal-oriented instructional design, an instructor whispered that he was about to reveal the secret of instruction design. Projecting a definition and diagram, he gradually revealed each element of a consistent instructional system. He illustrated each part, demonstrated application, and then asked learners to apply it. He included the diagram and an outline of an instructional plan on a wallet-sized card. Later he added this poem:

> Real-world performance is the goal.
> The objective describes the test.
> If all the parts are consistent,
> your instruction will be the best.

When fellows needed to design instruction, the combination of instructional strategies and transfer tools helped them remember the name of the principle, reconstruct the idea itself, associate certain cues that led them to the card, which they used to plan. For example, working at home, one fellow was planning to teach other physicians how to be successful on foreign medical missions. As she was thinking about what she wanted to teach, she remembered, "Real world performance is the goal!" Then she remembered the card, retrieved it from her home office, and applied the secret of instructional design to guide her creation of a coherent and effective session.

Tip 8

Demonstrate application

Yelon et al. (2004, 2013) found that MSU fellows made up their minds to apply methods when observing demonstrations and subsequently applied the methods that faculty showed them. Those results correspond to research showing that behavior modeling is a potent factor in producing transfer (Grossman & Salas 2011). To practice efficiently and to be able to apply at work, participants must see demonstrations of desired methods.

However, an effective demonstration is more than merely showing participants how to perform. According to Bandura (1977), to learn and transfer through observing others, learners have to be motivated to pay attention, have to be focused on the most critical aspects of the behavior shown, and have to form a mental template to guide action. Thus, in demonstrations, motivate learners by stating that they will practice the

procedures shortly, and will also use the procedures at work. Next, focus attention on listed steps by telling learners what to look at and look for before the demonstration. Then, as demonstrating, direct viewers' attention to the method's important features. Finally, before providing practice, ask students to commit the steps to memory (Yelon & Maddocks 1987).

Tip 9

Provide authentic practice

In studying the dynamics of transfer from a faculty development program, Yelon et al. (2004) reported that, to transfer, graduates need to be able to say, "I know I can use this notion". The researchers noted, "Fellows gained their knowledge from workshop explanations and demonstrations, but were most affected by practice" (Yelon et al. 1997).

Thus, it is imperative to arrange time for practice opportunities. As a rule-of-thumb, practice should account for a quarter to as much as three quarters of instructional time, allotting more time as learning progresses.

One basic principle of transfer is – to promote transfer, learners should practice performance in contexts similar to those at work (Thorndike 1913; Grossman & Salas 2011). Thus, practice should simulate conditions at work. Each practice should be a bit more challenging, yet achievable. To prepare learners for success, precede practice by careful explanation, a complete demonstration and precise instructions and criteria.

Tip 10

Require a project

Researchers reported that after the MSU program, fellows continued to develop their fellowship projects at work, such as developing a course, conducting research, or designing college policies (Yelon et al. 2004, 2013; Sleight & Reznich 2006). A project, in the context of a faculty development program, is an assignment requiring participants to apply skills learned to meet an important need at their home institution. The project is one instance of long term, development work expected of an academic physician. For example, in the MSU fellowship, participants are required to choose a significant curricular, research, or management problem at their home institution, to investigate and to design a solution, and then to implement the solution, evaluate it and report what they find.

A project is the perfect prescription for transfer from a faculty development program. In fact, as they progress in developing their projects, participants are transferring skills learned in the program. In addition, a project incorporates several main factors affecting transfer: participant's needs and interests, institutional needs, and a requirement that participants perform under real world conditions (Baldwin & Ford 1988). Specifically, participants choose projects of personal interest in collaboration with their home supervisor and the faculty development program staff. Together they design a feasible and useful project for their institution and perhaps the field at large.

The developmental work takes place over the length of the program, and it is designed to continue beyond. Just as it would in participants' careers, the work leads to a substantial professional product. For instance, some fellows in the MSU program produced a course manual including a justification of the need for a course documented with a literature review, followed by instructional plans, materials, a report of a pilot test, and plans for revision and continued development. In addition, fellows wrote a paper in publishable form, created and presented a poster, and summarized their work at a conference attended by work supervisors.

But, merely requiring a project does not insure successful accomplishment. To complete a project successfully, participants need frequent opportunities for self-assessment, and continuous, extensive guidance and feedback from others at every step of the project. That form of systematic supervision is made possible by project groups consisting of three to five participants and one or two program staff, who act as mentors. The purpose of project groups is to continuously promote, monitor, and support successful project development.

MSU mentors set frequent, but reasonable, deadlines for reviewing work. They encouraged participants to help each other succeed in transfer. Both mentors and group members provided feedback to improve, encouraged participants to advance, pointed out roadblocks to transfer and provided strategies to overcome the obstacles in work conditions. Participants provided support and pressure as they affirmed proper application and pinpointed errors. When the group formed a consensus about a participants' work, it had a profound effect on that participant's plans.

Tip 11

Establish the feedback cycle

Yelon et al. (1997, 2013) described a continuous cycle of learning from transfer. Through practice and subsequent feedback in the MSU program, participants became willing and competent enough to try new methods at work. At home, they observed and analyzed the consequences of their attempts, were encouraged to continue to use successful methods, to improve unsatisfactory performance, and to try again.

To begin to establish the continuous cycle of learning from transfer, teach participants how to provide useful, respectful, frank, and positive feedback to their own medical students and to each other. Then, for each practice in the program, ask learners to assess their own work and to check peers' work before program staff makes their analyses. Next, teach how to seek, gather, accept and use feedback to improve themselves at home, as they will and must do the rest of their careers.

As a first step, establish a group feedback routine. Specifically, immediately after completing a task, ask the participant performers themselves to state what they did well and what they would change. Next call for similar comments from peers and faculty. If performers become defensive, remind them to listen and attend to what they should continue to do and what they need to do differently to meet the criteria.

Finally, ask performers to report what they heard and what they would do the next practice round.

Subsequently, provide opportunities for participants to apply what they have learned about giving, listening to and accepting feedback. When practicing new skills or when presenting portions of their projects they need to listen to peers and staff in the program, colleagues and supervisors at home, and critics and experts outside their institution.

Tip 12

Evaluate transfer

Over the years MSU fellows mentioned that they had used what they had learned. Faculty became curious about what, when, how, and why fellows had transferred what they learned. Consequently, MSU program faculty set out to evaluate transfer. Their purpose was to generate hypotheses about what had transferred and why, so as to improve the program and to inform colleagues about transfer. In the three studies mentioned (Yelon et al. 1997, 2004, 2013), Yelon et al. asked fellows to tell stories about their applications. From the stories faculty gained considerable food for thought about specific aspects of the program, and about transfer in general. One outcome was the tips you have been reading.

Thus, if faculty development program developers design a program oriented for transfer, they should consider allocating some time and effort to evaluate application. Evaluators can use qualitative research approaches calling for open-ended responses as recommended by Ford et al. (2011) to gain insight into the process of transfer. They can also use online questionnaires and surveys or critical incident reports using a social media site.

Conclusion

For faculty development participants to be likely to apply the methods they learn, they must: (1) be *able* to perform, (2) be *willing* to try and (3) feel *supported* (Mager & Pipe 1997). In our 12 tips, we account for each of these prerequisites to transfer. First, to create the *ability to transfer*, participants learn needed competencies, as knowledgeable faculty guide them via relevant content, aids, demonstration, practices and feedback. Second, to create *willingness* to apply, participants learn to adhere to a norm of applying the practical, needed approaches taught. As they achieve success and notice the effectiveness of their new skills, they want to try again. Third, to produce *support* for application at work, participants learn to arrange for the physical resources, time, and opportunities to transfer. Further, when participants realize that they can take care of themselves by seeking, gathering and using constructive feedback about the effects of their attempts, they feel secure. Because all three outcomes are necessary to influence transfer, the tips are to be used as a system. Clearly, designing a faculty development program to produce able, willing and secure medical educators is a demanding task, but well worth the effort.

Notes on contributors

STEPHEN L. YELON, PhD, is professor emeritus of educational psychology at Michigan State University. He was a faculty member for the duration of the MSU Primary Care Faculty Development Program. He consults with professors and medical educators about design, delivery, and evaluation of instruction.

J. KEVIN FORD, PhD, is professor of psychology at Michigan State University and a fellow of the American Psychological Association. His research interests focus on improving training effectiveness.

WILLIAM A. ANDERSON, PhD, is a Professor in the Office of Medical Education Research and Development (OMERAD), College of Human Medicine, Michigan State University. He was Program Director for the Primary Care Faculty Development Fellowship Program from 1978 to 2012.

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