

PROFESSIONAL BICULTURALISM ENCULTURATION TRAINING: A NEW
PERSPECTIVE ON MANAGING THE R&D AND MARKETING INTERFACE

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ABSTRACT: Literature on technology and innovation management has identified the research and development (R&D) and marketing (RDM) interface as a critical organizational complexity that when managed well can affect company success in innovation. Cross-functional teams and collaboration mechanisms, such as boundary spanners, have been identified as solutions to the problems in communication between the two groups. However, these methods have not been as effective as desired and questions still exist as to how boundary spanners are created for success at this crucial interface. This chapter takes a different theoretical perspective: that of creating professional biculturalism in order to effectively manage the RDM interface and thereby enhance creativity and productivity in the innovation process.

The culture pertaining to R&D personnel or technologists, meaning engineers and “hard” scientists, can be referred to as the T-culture. The culture pertaining to marketing or social “soft” scientists (meaning business, sociology, psychology, etc.) can be referred to as the S-culture. Each of these cultures has its own practitioners; languages; modes of analysis; mores; and standards of validation. This chapter specifies propositions regarding the importance of professional biculturalism in bridging the disconnect between the T and S cultures. A professional bicultural is a person who possesses insider knowledge of both cultures. This chapter also enunciates the effectiveness of professional biculturalism enculturation training. This chapter has implications for managers of not only the RDM interface, but also other areas of the company where disparate professional cultures intersect and present a barrier to effective innovation. Innovation and product development require a high degree of integrated problem solving across different scientific, technical and functional domains. When individuals are professionally bicultural, it affords the RDM interface a critical component of integrality. Managers should look to developing a training program to inculcate professional biculturalism in their employees.

Literature on managing technological innovation highlights the importance of managing organizational complexities, especially the complexities that exist at the boundary between research and development (R&D) and marketing, commonly known as the RDM interface (Maltz, Souder, & Kumar, 2001). Managing the RDM interface is important to all stages of the innovation process as interaction between both groups determines ultimate product design and how product innovation can truly begin to meet the needs of new markets.

Managing the RDM interface is difficult (Griffen & Hauser, 1992a). Literature on the RDM interface describes various obstacles that individuals in the respective groups have in working with one another. Among these obstacles, the inability to communicate across functional groups is critical (Pelled & Adler, 1994). This literature recommends the creation of cross-functional teams or increasing collaboration mechanisms as a way to resolve this communications disconnect (Crittenden & Woodside, 2006). However, such recommendations are based on the assumption that just by increasing cross-functional communication—by putting people in teams or creating collaboration mechanisms—creativity and productivity will be increased. There are numerous examples where this approach has not worked and cross-functional teams have found themselves not only behind in schedules, but also embroiled in daily interactions filled with hostility. Increased communication and collaboration, on the one hand, solves the information access problem involved in using scientific, technical data, and the statistical results of market research. On the other hand, they also contribute to problems, such as information overload, information interpretation, and information quality (Gerstenfeld & Berger, 1980). In managing the RDM interface, it is not just what is communicated but how and to whom.

How can companies better manage the RDM interface? To answer this question, this chapter examines the literature on multicultural management. Taking the perspective that R&D and marketing represent two different professional cultures, this chapter develops the concept of *professional biculturalism*. This chapter posits that biculturalism is another potential method for enhancing creativity and productivity in idea development, problem solving, and implementation of innovation. This chapter suggests that professional biculturalism can be inculcated through formal training.

The chapter is organized as follows. First, the difficulty of managing the RDM interface and its importance to the innovation process is reviewed. Then, key multicultural management concepts are identified to see how they can be incorporated in managing the RDM interface. Finally, this chapter examines how professional biculturalism training may be used to increase the efficiency and efficacy of interdisciplinary collaborations in R&D mixed work teams. On this basis, a professional biculturalism enculturation training protocol can be developed. In conclusion, implications for managers and areas for further research are identified.

Managing the R&D and Marketing Interface

The literature on innovation management identifies the RDM interface as important to the three stages of the innovation process: idea generation/variation; problem solving/selection; and implementation/retention (Mahoney, 2007). During idea generation, a design or proposal is developed. Traditionally, this stage is “owned” by R&D teams. However, this is an area of increasing cross-functionality as technical ideas are integrated with market needs (Dougherty, 1992). In the problem solving stage, specific technical goals are set; priorities are assigned to goals and the initial idea is developed into a technical solution where alternative solutions are ascertained and evaluated. R&D also traditionally owns this stage, although feedback from

marketing is increasingly used in defining and redefining problem areas (Griffen & Hauser, 1992b). Implementation, however, requires effective coordination and administration to bring new products or processes to first use. Usually, this stage is owned by marketing. R&D involvement in this stage increases the opportunity for creating feedback loops. In the use of feedback loops, implementation of previous ideas become inputs to new idea generation and the innovation process is restarted as an evolutionary chain. Thereby, connections between existing solutions and future problems can be made across the RDM boundaries. When such connections are made, existing ideas often appear new and creative as they change form, combining with other ideas to meet the needs of different users (Hargadon & Sutton, 2000).

Commercial success of a new product depends on how well the market opportunity has been identified, analyzed, and incorporated into the product's design (Nambisan, 2002). Yet, new product developers often fail to take into account the market and the necessity to collaborate across departments (Dougherty, 1992). There appear to be inherent conflicts between R&D and Marketing. As Workman (1997) finds, engineers and scientists in R&D often have the following complaints about marketing's contributions; customers do not know what they want; marketing does not have the needed technological expertise to provide substantial inputs to product changes; and marketing's time horizon is too short. On the other hand, marketing complains that engineers and scientists in R&D lack perspective and do not appreciate prior customer investments; engineers and scientists in R&D do not understand the concept of diverse market segments; and that marketing's role is too narrowly defined in refinement of technically-driven ideas instead of finding ways to technologically embody customer needs.

Managing the RDM interface and the interaction between groups has thus focused on ameliorating and improving communication issues and increasing the flow of information by establishing cross-functional teams and collaboration mechanisms (Crittenden and Woodside, 2006). Unfortunately, cross-functional teams and collaboration mechanisms might not be the only answer. There are critical issues associated with the use of scientific and technical information, such as information overload, ability to understand the information, and the quality of the information (Gerstenfeld & Berger, 1980). Likewise, although companies invest heavily in systems for capturing market knowledge, few companies actually benefit from the effective use of this market research information (Kyriakopoulos, 2004).

In managing the RDM interface, it is not just a matter of increasing communication but in also understanding what is being communicated, how it is communicated, and to whom it is being communicated. For example, Dougherty (1992) investigates interpretive schemas or the styles in which people organize their thinking and action about innovation as major barriers to collaboration. Although interpretive schemas are like "culture" in that they provide shared assumptions about reality to identify relevant issues and help people make sense of those issues, temporarily engaging different schemas does not take into account the individual's socialization, which affects conceptualization of innovation and creativity in the long-term. If one department dominates a company's product development process, the market understanding will, ipso facto, match the department's market schema. Conversely, if one department is left out of the process, it will be left out of the market understanding schema (Dougherty, 1992). The quality of communication can be enhanced by the roles of individuals who cross intraorganizational functional boundaries, known as boundary spanners (Richter, West, & Van Dick, 2006). Specialized areas evolve to deal with particular tasks or environments (Tichy, Tushman, & Fornbaun, 1979). As these specialized units develop, each generates its own idiosyncratic norms, values, time frame, and coding schemas to permit effective processing of information.

Thus, inherent conceptual and linguistic differences act as a communication impedance or boundary hindering the free flow of information (Richter, West, & Van Dick, 2006). Organizations look to boundary spanners, or individuals who fill the role of translating these contrasting coding schemas. Typically, these “communication stars” have more laboratory experience; are at higher levels in the organizational hierarchy; and are more professionally and operationally oriented (Tushman & Scanlan, 1981). However, these characteristics and orientations do not address the process whereby an individual becomes acculturated to the two different coding schemas between which he/she must translate. The next section examines the multicultural management literature to identify this acculturation process.

Learning from Multicultural Management: Professional Biculturalism

Marketing and R&D can be considered as two different *professional cultures* where the concept of culture extends beyond national and regional differences. According to the knowledge perspective of culture, culture can be conceived as a network of distributed knowledge (ideas, beliefs, practices, and values) that is produced, shared, and reproduced among a collection of interconnected individuals (Chiu & Hong, 2007). By adopting this knowledge perspective, we can address the deep diversity in knowledge traditions that creates different professional cultures. Thus, we can identify methods to create successful interactions that address not only increased communication, but also increased information quality and understanding. In the case of the RDM interface these methods have not as yet been identified.

Griffen and Hauser (1992a) summarize the cultural differences between marketing and R&D. Primarily, marketing prefers a short time horizon of incremental projects. The focus is on the market and a high degree of ambiguity and bureaucracy can be accepted. Marketing develops a professional loyalty to the company. By contrast, R&D prefers a long time horizon of advanced projects. The focus is on scientific development and loyalties are to their scientific profession. They have a low tolerance for ambiguity and bureaucracy and a high need for specificity. Naturally, these rules do not apply to every individual professional or even to every marketing or R&D department, but they do indicate trends that researchers have been able to identify.

The culture pertaining to R&D personnel or technologists, meaning engineers and “hard” scientists, can be referred to as the T-culture. The second culture that pertaining to marketing or social “soft” scientists (meaning business, sociology, psychology, etc.) can be referred to as the S-culture. Each of these cultures has its own practitioners; languages; modes of analysis; mores; and standards of validation. Adhering to a disciplinary culture can be compared to a double-edged sword—on the one hand, it provides a foundational schema to structure knowledge acquisition, organization, and generation in a discipline; on the other hand, it also creates intellectual blind spots for practitioners in each discipline.

Professional cultures are like national cultures in that they are reproduced through institutionalization of cultural practices. In professional cultures, institutionalization occurs through academia, e.g., professional codes, textbooks, training programs, and in-class social interactions. As Barth (2002) puts it, “Mathematical knowledge has its computations, gross anatomy its atlases, microbiology its technical apparatus and chemical models, and so on. These representations shape both thought and action and thus the practices of scholars in different disciplines” (p. 9). Indeed, knowledge in an academic discipline is often represented via its characteristic framing images and metaphors (e.g., the metaphor of war games in immunology), which shapes construction of research projects, communication of knowledge, and production of new knowledge in the field (Barth, 2002).

Not surprisingly, as individuals acculturate into their professional cultures, the framing “idea network” and hidden metaphorical associations also permeate their general worldviews. The differences in the structure of knowledge across academic disciplines also create a characteristic communicative style among its practitioners when they talk about knowledge in their discipline. Compared to ideas and concepts in the humanities and social sciences (S-culture), those in the hard scientists (T-culture) are more exact and specific. For example, the ways to define or refer to a natural science concept (e.g., the law of relativity) are invariant among natural scientists. Whereas, the ways of referring to social science concepts among social scientists are highly variable (e.g., the relative deprivation hypothesis). As a consequence, natural sciences require a smaller academic vocabulary than social sciences and humanities. For example, the average number of different words out of the first 400 words in a natural science publication is around 160 words, compared to 200 words in a humanity publication. The average number of different words of the first 400 words in an introductory natural science lecture is around 160 words, compared to 195 words in an introductory humanity lecture (Schachter, Rauscher, Christenfeld, & Crone, 1994). Because humanists and social scientists (vs. natural scientists) use more varied vocabularies to communicate ideas in their discipline, they pause more frequently when they talk about ideas in their field. In an introductory lecture of their respective discipline, humanists make an average of almost 5 filled pauses (e.g., “ums,” “urhs”) per minute and social scientists make an average of 4 filled pauses per minute, compared 1.5 filled pauses per minutes for natural scientists (Schachter, Christenfeld, Ravina, & Bilous, 1991). Because speech with frequent filled pauses is often interpreted as hesitant speech, natural scientists listening to a social scientist explaining ideas in the social sciences may erroneously infer that the social scientist are not confident in the expressed ideas.

Intellectual Centrism as an Obstacle to Cross-Disciplinary Collaboration

Given that professional cultures can be treated as an analog to national cultures, professional enculturation is necessary for the individuals’ socialization, much like family interactions, schooling, and consumption of popular culture in national socialization. *Professional enculturation* provides individuals with expertise in their field, so that they can spontaneously apply their disciplinary perspective to define, conceptualize, and define a problem; use established standards in their discipline to evaluate the validity, applicability, and utility of a solution; and adopt the widely accepted, customary mode to discourse to present, discuss, argue for, and defend their ideas. However, professional enculturation also leads to *intellectual centrism* —the belief that one’s disciplinary perspective is the only applicable and valid perspective in the discipline’s primary domain of inquiry (Kruglanski, Pierro, Mannetti, & De Grada, 2006).

Intellectual centrism is not a big problem when the individual functions in domains that require intellectual inputs from a single or several closely related disciplines (e.g., input from several academic laboratories). However, in domains where knowledge from seemingly dissimilar disciplines needs to be appropriated for solving problems, intellectual centrism may block interdisciplinary collaborations. The RDM interface is such a context where intellectual centrism is a potential liability. In this context, R&D professionals think that their perspective takes precedence in the interface, while marketing professionals think that their perspective is critical to the success of the project. Indeed, the observation that R&D and marketing tend to complain about each other’s intellectual limitations, as reviewed earlier (Workman, 1997), may be a manifestation of intellectual centrism.

Aside from chronic individual differences, situational variables also aggravate the effects of intellectual centrism. For example, when individuals work under time pressure, they are more motivated to appropriate widely used and accepted knowledge in their own culture to solve problems rather than considering alternative ideas from other cultures. Time pressure also increases the tendency to evaluate outgroup cultures negatively (Lam, Chiu, Lau, Chan, & Yim, 2006).

Developing Professional Biculturalism

Professional biculturalism is a key to navigating domains where knowledge from seemingly dissimilar disciplines is recruited for solving problems. A *bicultural* is a person who possesses insider knowledge of two cultural knowledge traditions (Benet-Martínez, Leu, Lee, & Morris, 2002). A bicultural does not have to be equally fluent in both knowledge traditions. Thus, a professional bicultural does not have to study in two different professional disciplines, but is able to readily access and retrieve from memory the knowledge network that permeates each discipline.

Basically, once a person is acculturated to two professional perspectives, both perspectives are available, although they do not necessarily have equivalent levels of accessibility. The primary professional perspective is usually more accessible than the secondary professional perspective. For example, for a professional bicultural who received his/her formal professional training in engineering and learnt about the marketing perspective from working with her marketing colleagues, the engineering perspective (the primary perspective) is likely to be more cognitively accessible than the marketing perspective (the secondary perspective). Thus, for professionals at the RDM interface, the S-culture will have higher chronic accessibility among marketing professionals than R&D researchers, and the opposite will be true for the T-culture. The professional culture with a higher level of chronic accessibility will be used as the default professional perspective when approaching an R & D marketing problem.

However, professional biculturals can spontaneously and effortlessly switch from the primary perspective to the secondary perspective when the current task demands it. This process has been referred to as cultural frame-switching (Benet-Martínez, Leu, Lee, & Morris, 2002). Research on bicultural psychology has provided consistent evidence for the phenomenon of bicultural frame-switching in the context of national cultures. European Americans tend to make dispositionist interpretations of behaviors whereas Chinese tend to make group influence interpretations of behaviors. Some individuals like Chinese Americans possess insider knowledge of both European American and Chinese cultures. These biculturals tend to make dispositionist interpretations when they encounter cues that signal the appropriateness of European American culture (e.g., images of American cultural icons—Mickey Mouse, cowboy), and make group influence interpretations when they encounter external cues that signal the appropriateness of Chinese culture (e.g., images of Chinese cultural icons—the Stone Monkey, Chinese opera singer) (Hong, Benet-Martínez, Chiu, & Morris, 2003).

In the context of the current discussion, we use the term *professional cultural frame-switching* to refer to the flexible switching between the two professional cultures in response to the changing demands of the context. Although cultural frame-switching has been studied almost exclusively in the context of national cultures, we expect professional biculturals to be able to engage in spontaneous and effortless frame-switching as well.

Professional cultural frame switching is valuable for overcoming intellectual centrism. First, there is evidence that in dyadic interactions, the interaction partner's cultural membership

may also trigger culture frame-switching. For example, Asian Americans know that compared to European Americans, Asians are more concerned about minimizing loss than maximizing gains. When trying to sell life insurance to a European American customer (vs. an Asian customer), Asian Americans switch frames to include more gain maximization arguments and fewer loss-minimization arguments (Chiu & Hong, 2007).

In another study, Adair, Okumura, and Brett (2001) compared how American and Japanese international students in a U.S. business school engaged in intracultural and intercultural business negotiation. Negotiation transcripts were coded and content analyzed to identify the negotiation strategies used. The results show that American business students, who knew relatively little about Japanese culture, used similar strategies when they negotiated with another American as when they negotiated with a Japanese. In both cases, they tended to exchange information directly. For example, they would tell the other party their reactions toward an offer or a proposal. They were comfortable sharing information about priorities, comparing and contrasting their preferences and those of their opponent, and providing direct feedback to their opponent's offers or proposals. In contrast, Japanese international students, who were knowledgeable in both American and Japanese cultures, tended to exchange information indirectly with another Japanese, but would shift frames to more direct negotiation strategies when they negotiated with an American. For example, with another Japanese, they tended to respond to an offer with a new offer or a counter offer, and to infer from a chain of multiple offers and counter offers their opponents' priorities and preferences. However, with an American negotiator, Japanese international students tended to accommodate their strategies to American norms by reducing the use of indirect information exchange, and increasing the use of direct information exchange.

Cultural frame-switching is a spontaneous and effortless process in biculturals. In a recent study, investigators developed a new multiple trial task to measure the spontaneity of culture frame-switching in biculturals. In each trial, a participant read from a computer display a sentence that referenced either Chinese or American culture, which was then followed by a word. The participant's task was to judge, as fast and as accurately as they could, whether the word was in the given sentence. The sentence contained a reference to either some aspects of Chinese culture (the clay warriors in an Emperor's tomb) or American culture (eating turkey in a major festival) and the associated word referred to either a Chinese value (e.g., modesty) or an American value (e.g., freedom). The focus of the analyses was on the participants' response times when the target word was not in the sentence. Chinese-American bicultural participants (Chinese Americans, Westernized Chinese undergraduates in Hong Kong) spontaneously thought of American culture and its attendant values when they read a sentence that referenced American culture. For example, when the correct answer was 'no' in a trial, the spontaneously activated American value to which the target word referred was already on the top of their mind. The participants had to suppress the highly accessible "yes" response to give the correct "no" response. Thus, their response times were significantly delayed in these trials. The same participants also had delayed response times on trials where the sentence referenced a certain aspect of Chinese culture and the target word referred to a Chinese value. Response times indicated that the participants spontaneously inferred Chinese values when reading sentences that referenced Chinese culture. The data showed that biculturals switch between cultural frames within seconds, spontaneously, without conscious deliberation. In comparison, non Chinese-American biculturals do not display such rapid cultural frame-switching (Fu, Chiu, Morris, & Young, 2007). If the professional identity of their coworker can trigger professional cultural

frame-switching rapidly and spontaneously, similar to national biculturalism, then professional cultural frame-switching may be used effectively to mitigate the impact of intellectual centrism. For example, when a professional bicultural works with an engineer, the presence of this colleague spontaneously and quickly activates the bicultural's knowledge in the T-culture. Likewise, when a professional bicultural works with a Marketing colleague, the presence of this colleague spontaneously and quickly activate the bicultural's knowledge in the S-culture.

Professional Biculturalism Enculturation Training

Given the prevalence of domains where intellectual centrism actually hinders performance and where knowledge from seemingly dissimilar disciplines is essential, like the RDM interface, we postulate the following propositions vis-à-vis the importance of professional biculturalism and the importance of bicultural enculturation training. Bicultural individuals as opposed to monocultural ones are more likely to appropriate ideas from other cultures when they work on a creativity task. For example, when asked to develop an ordinary idea into creative one, multicultural individuals in the United States are more willing than their monocultural counterparts to consult ideas from unfamiliar cultures in the Far East and the Middle East (Leung & Chiu, in press-a).

Proposition 1a: Professional biculturalism is likely to increase cohesiveness and the individual's receptivity to ideas from other disciplines.

Original and innovative ideas often emerge when two seemingly non-overlapping national cultural traditions are placed in cognitive juxtaposition. Many creative products such as MacDonald's Rice Burger in Singapore, Starbucks' Coffee Mooncake in Hong Kong, Shanghai Tan Fashion in New York, and Lay's Peking Duck Flavored Clips in Beijing were created through the process of combining ideas from Eastern and Western cultural traditions (Leung & Chiu, in press-a). Flexibility in managing ideas from diverse cultures enables creative conceptual combination and recombination. Research has shown that national biculturalism predicts higher levels of cognitive complexity, or the ability to integrate ideas into more complex knowledge structures (Tadmor & Tetlock, 2006). Because this ability is important for the generation of creative ideas, national biculturalism is also related to higher creativity. For example, one study found that exposure to East Asian cultures improved European Americans' creative performance when they were asked to rewrite a Cinderella story for Turkish children and to construct creative analogies of time (Leung & Chiu, in press-a). National biculturalism is also related to higher levels of cognitive flexibility (Benet-Martínez, Leu, Lee, & Morris, 2002), whereas flexibility in managing multiple cultures predicts higher performance in culturally diverse work groups.

In keeping with this rich literature regarding the impact of national biculturalism on creativity, we postulate that when individuals have acquired knowledge in both S- and T-cultures, they can switch between the two cultures in response to the professional identity of their coworker and the demands from the current task. Hence, they can spontaneously assume their coworker's professional perspective in problem solving and communication. In addition, professional biculturals, with insider knowledge in both S- and T-cultures, can switch quickly and effortlessly between the two cultures. When the task calls for scientific and technological expertise, the professional bicultural could spontaneously access the knowledge network in the T-culture. When changes in the task requirements demand examination of the current problem

from a Marketing perspective, the professional bicultural could spontaneously switch to an S-cultural frame.

Proposition 1b: Professional biculturalism is likely to increase creativity in solving problems.

Training has been proven to foster biculturalism in national cultural contexts. Called Bicultural Effectiveness Training (BET), Szapocznik, Rio, and Perez-Vidal (1986) describe a treatment intervention for enhancing intercultural adjustment in Cuban American families. They found that compared to other established approaches for assisting individuals in intercultural adjustment, BET has significant effects and is more effective. BET is more process-oriented and uses culture as content around which to bring about changes in the way individuals relate. This finding is important since BET is about acculturation and cross-cultural adaptation. This training involves culturally sensitive intervention that capitalizes on certain features of culture conflict in order to ameliorate acculturative stress. By reducing culture conflict and acculturative stress, BET enhances adjustment in individuals and creates biculturalism. Along these lines, we propose that a training protocol based on acculturation and cross-cultural adaptation can be developed to impart professional biculturalism training. This training will teach members from each of the S- and T- cultures to function effectively in both cultural contexts.

Proposition 2: Professional biculturalism training facilitates professional cultural frame-switching and fosters effectiveness in intercultural communication.

Discussion

This theoretical exploration can be manifested in real-world practice. Professional bicultural training can be developed to focus on three methods to achieve, among other things, increased cognitive complexity, cognitive flexibility, and creativity in solving problems. These three methods, based on BET, involve the following: (1) training to move away from a theoretical focus (avoiding intellectual centrism) when conflicts regarding language occur in a central innovation project; (2) training to work flexibly in a group on complementary and peripheral projects; and (3) training to become sensitive to individual and group reflections in the innovation process. At the end of the course, students were asked to consider their level of professional biculturalism.

Implications for Management

This study has implications for managers of not only the RDM interface, but also other areas of the company where disparate professional cultures present a barrier to effective innovation. Innovation and product development requires a high degree of integrated problem solving across different scientific, technical and functional domains. When individuals can become professionally bicultural, it affords the RDM interface a critical component of integrality.

Managers should look to developing a training program to inculcate professional biculturalism in their employees. Professional biculturalism training, like national Bicultural Effectiveness Training (BET), can become a standardized method for managers to improve interactions at the RDM interface. It can be made easily replicable with the potential for broad distribution thus making it useful as an early way to prevent communication disconnects.

Bicultural individuals can generate different approaches to problem solving; can better incorporate individual and group reflections in a solution; and can better utilize and facilitate

complementary skills across the group. So, it behooves Human Resources management to develop appropriate and efficacious training protocols to ensure a critical mass of professional biculturals at each and every eclectic interface.

In this context, Transactive Memory Systems (TMS) has also been proposed as a way of improving performance and resolving conflicts in work teams composed of members from different professional background. TMS relies on the development of cognitive representation of knowledge distribution in a work team. There is impressive evidence that TMS increases performance in work groups (Zhang, Hempel, Han, & Tjosvold, 2007). We argue that TMS is important but not necessarily the only effective way to manage the RDM interface. Even with TMS, team members only know about the knowledge capabilities and strengths of the other members. However, they may not understand and be attuned to the professional perspectives of other disciplines. Hence there is a failure to appreciate the relevance and applicability of knowledge from these other disciplines.

Professional biculturalism is likely to enhance team performance above and beyond TMS, because of its focus on flexibility, avoidance of centrism and an inculcation of eclectic sensitivity and receptivity. Simply knowing what others know may not be enough to overcome obstacles. Professional biculturalism requires the (1) in-depth understanding of the knowledge network that permeates the secondary discipline and (2) the ability to access it quickly and effortlessly. In other words, professional biculturalism goes beyond simply knowing that marketers are good at marketing and engineers are good at engineering. Although professional biculturalism does not require an engineer to become a marketer or vice versa, it asks its practitioners to spontaneously switch between the interpretive frames of S- and T-cultures when they work together. The primary goal is to integrate insights from both cultures to generate eclectic creative solutions to a problem. For example, once a task cue or the presence of work team member renders a particular professional culture (T- or S-culture) relevant to the current problem, the pertinent culture will be activated. Professional biculturals would then spontaneously switch to the activated cultural frame and search for pertinent information from the activated cultural perspective. They will also actively approach people in the work team who are known to be subject matter experts (SMEs) in that profession for further guidance or advice.

Directions for Future Research

This chapter is a preliminary look into the ways in which professional biculturalism can be fostered and its impact on the RDM interface, including communications, creativity, flexibility and openness. Since this chapter is essentially a theoretical exposition, in which a number of propositions have been enunciated, its main limitation is the lack of strong empirical evidence supporting these propositions. So, the first step in our ongoing research will be to develop a Professional Bicultural Enculturation Training incorporating the ideas developed in this chapter. Subsequently, in a laboratory setting we plan to apply robust empirical tests to document the statistical significance of our propositions. These propositions are:

Proposition 1a: Professional biculturalism is likely to increase cohesiveness and the individual's receptivity to ideas from other disciplines.

Proposition 1b: Professional biculturalism is likely to increase creativity in solving problems.

Proposition 2: Professional biculturalism training facilitates professional cultural frame-switching and fosters effectiveness in intercultural communication.

Assuming that our propositions are statistically significant, we plan to develop and test future hypotheses regarding the effectiveness of professional biculturalism training in enhancing various cross-disciplinary collaborations.

Further research also needs to be done on a number of other related issues. One issue is that of the most effective training pedagogy for creating professional biculturalism. A second issue is that of the impact of professional biculturalism on productivity in creativity, innovation, and R&D in general. Lastly, the issues of the amount of diversity needed in teams, duration of training, and depth of joint project work that facilitates the “optimal” development of professional biculturalism need to be investigated further.

In order to test these issues further research should use formalized experimental designs (of test and control groups) with pre- and post- treatment surveys to identify: (1) the effectiveness of each type of treatment and (2) the nature of those individuals who are the most likely to become adept professional biculturals.

Limitations

Professional biculturalism is applicable in most team work settings that involve cross-disciplinary collaborations. However, it also has limitations. For example, as mentioned earlier, despite extensive exposure to a secondary professional culture, there may be situations where intellectual centrism will limit the potential benefits of professional biculturalism. For example, when the team needs to complete an assignment under time pressure or when the organization emphasizes efficiency and tight deadlines, the team members may tend to rely on the conventionalized knowledge in their primary discipline (Fu et al. 2007). Conversely, when the learning environment emphasizes a multicultural learning mindset, one that encourages learners to appreciate the value of the knowledge in the secondary discipline, multicultural experiences are very likely to increase creative performance (Leung & Chiu, in press-b).

Professional biculturalism may be ineffective with employees who have a chronic craving for cognitive closure. These individuals are likely to have stronger intellectual centrism (Fu et al., 2007). Finally, individuals who identify too strongly with their primary discipline may react negatively to professional bicultural experiences. For example, research has shown that biculturals who strongly identify with their primary culture often display contrastive responses to the cultural cues in the environment. Even when cues signaling the appropriateness of the secondary culture are present, these biculturals refuse to switch to the interpretive frame of the secondary culture. Instead, they adhere even more strongly to the interpretive frame of their primary culture (Benet-Martinez, Leu, Lee, & Morris, 2002).

Thus, a professional biculturalism training program is likely to be effective when it selects participants low on the need for cognitive closure. By creating a learning environment that emphasizes intercultural learning more than efficiency, professional biculturalism helps its participants develop an integrated professional identity, rather than highlighting the participants’ primary disciplinary identity (Benet-Martinez et al., 2002). In short, a successful biculturalism training program requires careful selection of participants, programming of the learning culture, and a bicultural identity construction process.

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