THE STUDY ON MEMBER INCENTIVE OF SCIENTIFIC RESEARCH GROUP IN UNIVERSITY BASED ON PSYCHOLOGICAL CONTRACTS

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Abstract: As development on scientific technology and socialization on the scientific research, the management on exoteric and collective scientific research becomes more difficult. The paper gives the subjects of 670 teachers coming from some universities from Jiangsu province. Exploratory factor analysis (EFA) has conducted to underlying constructs regarding an individual's obligation to the university. Three underlying factors were found and are referred to as meet 'academic expectations', 'commitment' and finally 'above and beyond'. The qualitative research of the paper identified four key foci of academic responsibility-the university, the discipline, society and students, which greatly influenced the formation and effects of member incentive of scientific research group based on psychological contracts.

1 INTRODUCTION

Since the 1980s, as development on scientific technology and socialization on the scientific research, the management on exoteric and collective scientific research becomes more difficult. The increasingly competitive environment and technological developments in university have engendered more and more organizational restructuring resulting in "changes in employment relationships with employees at all levels" (Tsui & Wang, 2002).

In the past, the organizational contractures of research team are not adapted by the current changes and challenges, which need to be performed by collective wisdom. the construction of research team and the achievements are not satisfied. Therefore, how to develop research team is more and more important.

The changes have stimulated much scholarly interest, particularly the study of employee responses to different types of employment relationships (Tsui, Pearce, Porter & Tripoli, 1997) and psychological contracts (Shore & Barksdale, 1998).

A psychological contract is the mutual expectations held by a number of members or staff scientists with different levels of scholarly development and a leader or research director (often a prestigious head professor) regarding the terms and conditions of the exchange relationship.

In the studies of member incentive of group based on psychological contracts, there is a large number of literature addressing psychological contract violation or breach.

Many studies of member incentive of group have generally shown that perceived psychological contract breach reduces members' commitment to the group, willingness to engage in group citizenship behavior, productivity, job satisfaction, job performance, and enhance the intent to leave the group and actual turnover. Common across these researches is that they examined perceived psychological contract breach and its consequences only from the perspective of members of group.

The paper gives the subjects of 670 teachers coming from some universities from Jiangsu province, the qualitative research of the paper identified four key foci of academic responsibility-the university, the discipline, society and students, which greatly influenced the formation and effects of member incentive of scientific

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research group based on psychological contracts.

2 THE RELATED DEFINITIONS

2.1 The Term 'Scientific Research'

The involved respects in this term include: stability, innovative, progress, series, continuation and systematicness.

I. Stability. An academic team, or persons who really strive to the research must insist on the long-term work and study attentively in a certain field, direction or subject. But at the same time, team or persons should follow the teaching principle to pay attention to consider things professionally and extensively. And must know about the knowledge of the relative subjects or the adjoin fields. For example, the achievements of the physics can be introduced to the computer field, which is like the introduction of science of heredity at last caused the production of the hereditary algorithm. We can't ignore the benefits which are bought from the extensive accumulation of knowledge in the relevant field.

II. Innovative. The innovative of the scientific research covers five levels which is sorted by the creativity extent: innovation with a new field, innovation with a new branch of a certain field (new direction), innovation with a certain subject in a branch, innovation with the reinforcement and development of the original skills in a certain subject, innovation with the integration of original theories and techniques.

III. Progress. It means the researcher should stand by the front of science and follow it all the time, and compare the research results with the original achievements in order to see whether his research can surmount the original achievement and reach the advanced level in the world.

IV. Series. In the relatively stable condition, the study work needs the characteristic of series, and the research results need to be developed from a rudimentary level to an advanced level. If the research result is expected to be series of theory, we must gradually build up the research system: the basic theory----the engineering application----the development of the technology.

V. Continuation. Since a new research direction (branch) is formed, there must be psychological need of sustainable development and research route of sustainable development. The source of every special topic is the inevitability that the theory itself will develop and the objective stimulus from reality. On the basis of our research results now, the following topic of research could be listed here: web-structure mining, image mining, audio mining, video mining, cause and effect automaton, etc.

VI. Systematicness. The research we engaged in such as structuring data mining, complicated type data mining and knowledge database-based data mining is all organized according to the six layers structure below. Thus, our research work can show some relatively completely systemic characteristics.

2.2 The Definition of Psychological Contract

Psychological contract represents the mutual beliefs, perceptions, and informal obligations between an employer and an employee. It sets the dynamics for the relationship and defines the detailed practicality of the work to be done. It is distinguishable from the formal written contract of employment which, for the most part, only identifies mutual duties and responsibilities in a generalized form. During the recruitment process, the employer and interviewee will discuss what they each can offer in the prospective relationship. The psychological contract is defined as an employee's beliefs about promises and their related obligations/expectations that comprise the informal exchange agreement between an employee and their organization (Conway and Briner, 2005). Perceived breach refers to the cognition that one's organization has failed to meet one or more obligations within one's psychological contract in a manner commensurate with one's contributions (Morrison and Robinson, 1997). EVLN frameworks such as Turnley and Feldman (1999) suggest that employees will respond to psychological contract breach by increased exit (leaving the firm altogether), increased voice (taking initiative with supervisors to improve conditions), decreased loyalty (decreasing the number of extra-role behaviors they engage in) or increased neglect (putting in half-hearted effort, more absenteeism and lateness, less attention to quality). Antecedents of breach are those factors that are thought to cause breach (Conway and Briner, 2005).

Feldhiem (1999) reflects these two strands by dividing the psychological contract into:

1) Transactional: this is the economic or monetary base with clear expectations that the organization will fairly compensate the

performance delivered and punish inadequate or inappropriate acts; and

2) Relational: this is a socio-emotional base that underlies expectations of shared ideals and values, and respect and support in the interpersonal relationships.

3 THE CHARACTERISTIC AND PSYCHOLOGICAL CONTRACT OF SCIENTIFIC RESEARCH GROUP

3.1 The Characteristic of Scientific Research Group

As mentioned above, the characteristics of scientific research group are reflected and followed 'SIPSCS'.

1. Generally, a scientific research team is established based on key lab or institute center. For example, vehicle technology institute team in Hunan University relies on domestic vehicle cabin design and produce key lab. This may reflect 'stability', 'constitution' above. The person in scientific team can stay at a institute till the project is accomplished. The long-term project brings stability for the members and requires constant process.

2. The direction of research toward basic and applications

Because of limitations on the foundation and condition in research, the scientific teams are centralized applications on biology, chemistry and physics. It requires series and innovative technology in the research. The research results need to be developed from a rudimentary level to an advanced level and has innovation with the integration of original theories and techniques.

3. The members in the team are familiar with each other

The team in the school is generally formed by the researcher in this school. They have already researched with the common method and come to an agree. This makes it better to deduct duration of a mission or project.

4. The key leaders are outstanding young scientist

School research team is generally formed by outstanding young scientist and makes 3 or 5 core member to lead. They have a reasonable professional structure and age structure. To do so can make the research team members to complement each other and complete tasks better.

Based on these characteristics, a scientific research team is uniquely and particularity, different from other team. Under these characteristics, the achievements and expression of scientific team is more or less influenced by psychological contract.

3.2 Psychological Contract in Scientific Research Group

The university-based research centers consisted of a leader or research director (often a prestigious head professor) and a number of members or staff scientists with different levels of scholarly development. Moreover, they benefited from a great deal of autonomy, functioning as truly independent small-scale organizations. The relationship between research director and center scientists captures a substantial portion of the employment relationship. Although certain aspects of the employment relationship are still managed at the university level (e.g., benefits administration), an important number of contract expectations are instantiated at the center level (e.g., performance requirements, scholarly development, access to promotions and incentives). In general, research center directors are the primary "contract makers"

(Rousseau, 1995; Rousseau & Greller, 1994) in this employment relationship. Research centers exist in a variety of venues, from universities and government agencies to private enterprises (de Hemptinne & Andrews, 1979; Lambright & Teich, 1981; Payne, 1990). Despite the variety of organizational types, the social structure of research organizations is strikingly similar (P. B. Cohen, Kruse, & Anbar, 1982; Mintzberg, 1979). This similarity has been attributed to the ethos of science and its specific norms regarding appropriate behavior for scientists in organizations (Pelz & Andrews, 1966; Storer, 1966). Research organizations tend to allow scientists a great deal of autonomy and control over their own tasks. As Lambright and Teich (1981) pointed out, "The standard model for a research setting is the university, a self-consciously egalitarian organization that emphasizes autonomy, individual entrepreneurship, peer evaluation of performance, non-uniformity, and minimal administrative control" (p. 305). The broader organization, whether it is a university or a school within the university, a government agency, or a research and development facility of a large corporation, often acts as an

umbrella hosting a number of research centers. Knorr, Mittermeir, Aichholzer, and Waller (1979) reported that university-based research centers retain most of the structural power in terms of goal setting, budget and resource allocation, promotions and incentives, and control over research tasks. In effect they "constitute more or less independent small-scale organizations" (p. 97). Research directors (center leaders) play a crucial role, acting in effect as the primary agent of the employer and foremost contract maker in expressing commitments and evaluating performance of staff scientists (center members). The opportunities staff scientists have for funding, publication, participation at conferences, accessing promotions, or career development are largely determined by the research director and his or her personal management style, competence, and power (Knorr et al., 1979). At the same time, directors depend on contributions from center scientists for accomplishing research goals and scientific productivity. Directors retain considerable control over administrative decisions affecting their centers by taking part in various academic committees or by influencing the selection of other colleagues who occupy critical managerial positions in the hierarchy. Thus, as critical players of organizational politics, the role of research directors is "much more similar in structural terms to the role of top management than to the role of a departmental head in an industrial firm" (Knorr etal., 1979, p. 98).

4 THE EMPIRICAL RESEARCH ON MEMBER INCENTIVE OF SCIENTIFIC RESEARCH GROUP BASED ON PSYCHOLOGICAL CONTRACTS IN UNIVERSITY

The subjects of this study are 670 teachers coming from some universities from Jiangsu province. Effective sample as follows: Doctors were 138, accounting for 25.5%; Master 301, accounting for 55.5%; undergraduate 103, accounting for 19%., 306 were males, accounting for 56.5%; women, 236 people, accounting for 43.5%.People to work for two years were 168, accounting for 31%; for 2-5 years, 210 people, accounting for 37.7%;work for 5-10 years, 158 persons, accounting for 30.1%; 10 years or more 6 people, accounting for 1.2%.

Exploratory factor analysis (EFA) was the following table 1, which conducted to determine underlying constructs regarding an individual's obligation to the university. Three underlying factors were found and are referred to as meet 'academic expectations', 'commitment' and finally 'above and beyond'. Again the factor analysis was satisfactory, with a KMO of 0.765 and a Bartlett's of 0.00. The eigenvalues indicated that a three factor model was present. Equally, the variance explained was 58%, whilst generally 60% is required, which

Table 1: University's obligations to the members of scientific research group: Exploratory factor analysis.

Item	1	2	3
Comply with university rules and regulations	0.74		
Act ethically at work	0.65	0.40	
Advance your discipline	0.62	0.58	
Publish scholarly research	0.58		
Work effectively and efficiently	0.57	0.45	
Stay employed by the university for the next 2 years		0.77	
Travel for work		0.73	
Act collegially		0.61	
Work long hours to complete tasks		0.52	0.51
Complete tasks that are not strictly part of your job			0.78
Complete tasks that are asked of you			0.66
Provide teaching quality	0.52		0.61
Enhance student development	0.58		0.59

means the figure is near enough to suggest a three factor model. Some of the colorations in the coloration matrix were also greater than 0.30. Hence, factor analysis is deemed appropriate for use.

By psychological contracts nature, psychological contracts vary significantly across groups and even across different sections or units of the same group. Hence, the many literatures suggest that greater use of idiographic methods to assess member psychological contracts of scientific research group would be appropriate in order to access and understand the varied member experience of the psychological contract in scientific research group.

The qualitative research identified four key foci of academic responsibility that greatly influenced the formation and effects of member incentive of scientific research group based on psychological contracts and the four key foci of academic responsibility were: a) the university b) the discipline c) society d) students

Members of scientific research group join the university with a strong work ethic and this is evidenced by many comments relating to a willingness to work outside 'normal' working hours, to be flexible in taking on various roles and to engage emotionally with their work:

'. . .a willingness to work beyond the stated hours and a willingness to take on Faculty and University roles that are not sustained in one's duty statement and that aren't remunerated.'

The members of scientific research group feel that the breadth of knowledge they bring to their work is an important contribution to the University. It was consistently stated that disciplinary knowledge, teaching and industry knowledge and experience, and industry contacts and networks, are highly valuable, but are not equally recognised by management. Conscience, personal ethics, integrity and a desire to make society a better place were strong motivators for staff and represented commonly discussed aspects of personal qualities that staff felt they were bringing to their academic work. Motivation and enthusiasm were frequently discussed in terms of 'making a difference', 'making society a better place', and generally expressing a desire to advance social justice and ethics.

These responses demonstrate that it would be limiting to attempt to understand the formation of the psychological contract only in terms of what the member of scientific research group feels they owe the university. The commitment and concerns of academics are often directed more toward the students and society with the institution providing a means of serving those higher goals. If they are frustrated with unmet expectations and promises, it is likely that these frustrations will occur in areas that impinge upon their ability to fulfil their personal mission of attaining these higher goals.

Building upon perceived promises of mutual exchange the members of scientific research group spoke at length regarding what they were expecting of the University in return for what they bring to their job. A common theme that emerged from the statements is that academics want to be recognised and treated as professionals. Much of the discussion centred on the expectations of leadership, fairness and transparency in promotion and recognition of one's personal commitment to the profession, the university and the students.

Beyond the more tangible benefits that would normally be associated with employer responsibilities employees expect good leadership and sound management skills. Issues related to leadership such as trust clear and honest communication, transparency, advocacy, individual consideration and respect were prominent throughout the conversations. Generally, there was a realistic acceptance of the constraints within which management must make decisions, and that such constraints can lead to broken promises and failure to meet expectations from staff. What was not accepted, and this raised considerable emotion, was failure to address such situations in an honest manner and communicate outcomes effectively:

'Part of the transparency is the explanation for decisions that are made, clear justification and reasons why the decision was made rather than 'this is the decision' and nothing else.'

Commitment to teaching and the desire to contribute to society provide powerful motivators for academic staff and the need for academic freedom and job discretion were linked to these motivations. Staff expressed a strong expectation of autonomy, job discretion and inclusion in decision making and this was related to their professional identity:

'There's an expectation that our professionalism will be respected, that we're not going to be treated as if we've got nothing to add and that we're just automatons in the machine'

'Fairness in all things' was an expectation consistently expressed by the members of scientific

research group, which included equitable pay, impartiality, fairness in promotion, consistency in applying rules, acceptance of union involvement, reciprocity, and an expectation that family and outside commitments should not cause disadvantage.

The members of scientific research group also perceived their role as being equally involved in teaching, researching and administration and expect to be rewarded accordingly. This expectation of recognition for effort and achievement goes beyond the desire for a fair promotion and remuneration system, and addresses a basic need to be affirmed, appreciated and acknowledged by others:

‘ Recognition and acknowledgement particularly when you go beyond …the normal call of duty which I think we do frequently’.

Key areas where the University was considered to have fulfilled or exceeded its implicit promises of employment included support in such areas as research, outside activities, training and development and with regard to personal and emotional issues. While the support was appreciated, staff recognised that it was a reciprocal relationship:

'I think it’s a recognition that they are willing to do something for you to help you out, that you will pay them back [agreement from group] tenfold down the track . . . it makes it sound like an exchange relationship but still I think it is more than just that '

Even the groups who spoke more positively about their psychological contracts had much that they wanted to speak about with regard to when these contracts had been violated. The most striking consistency across the three focus groups of academics carried out for this research was the unprompted repetition of the phrase ‘changing the goalposts’ at each of the focus groups.

There were also many references to dysfunctional aspects of the organisational culture such as: competitiveness, bureaucratic centralised control, short-term focus, and lack of customer (i.e. student) focus.

‘We have talked about who are our customers and who we are building relationships with. I have seen [the university] do this and once again I expect it happens at other institutions that the student are not the main focus and I think it’s a pity.’

Administrative rules and regulations constituted one of the two key issues that were at the heart of most of the reports of psychological contract violation. Many members of scientific research group perceived an encroachment of administrative systems stressing compliance, conformity, rationality and efficiency upon their practice as academic professionals who require flexibility, personal discretion and autonomy.

More broadly, the negative effects of the psychological contract violation were shown to be mediated by the nature of the academic work that involved a commitment to the students even when frustration with the institution was high:

‘there is that third dimension which plays a huge part in [the] psychological contract with the students. . . our responsibility and caring for the students that locks us into that contract …’

The most frequently cited responses to psychological contract violation were loss of loyalty and neglect behaviours. Some said that the decreased loyalty was resulting in their ‘giving up’ and feeling helpless. Others referred to behaviour that saw them less likely to engage in extra-role behaviour:

'You concentrate more on your own interests instead of the broader interests than you have in the past.’ Increased neglect, particularly decreased attention to teaching quality, was a prominent topic of discussion:

‘ It goes back to equity theory of motivation . . . You’ll do one of two things. You’ll either withdraw your labour totally . . . or you will slow down …'

However, for some members of scientific research group the violation event gave them impetus to adapt to the new system and even enjoyment of the opportunities it offered. These adaptations to the new priorities and demands of the University showed that internal and external catalysts during an organisational restructure lead to renegotiations in which the contract evolves.

5 THE SOLUTIONS AND SUGGESTIONS

Following are three aspects to manage psychological contract in scientific research team.

5.1 The Type of Interpersonal Psychological Contract

1. Establish Effective Communication Channels

In the scientific research team, understanding and recognition of team goal are different while the status are not equal. Therefore, the rights or

responsibilities and individual cognition are likely not the same. Communicate timely and accurate communication is necessary to avoid psychological contract violation caused by the inconsistent of responsibilities and obligations between members and organizations. The majority of members are well educated workers. They pursuit independence, autonomy, diversity and innovation. Therefore, it should not only establish effective communication channels, but also promote the two-way communication between managers and team members. Enhance the managerial level through improving horizontal and vertical two-way decision-making system, thus stimulating enthusiasm and creativity during their work.

2. Establish Trust and Cooperation Team Culture

Sometimes the tasks are relatively urgent and limited on time. Trust and cooperation culture needs to be established rapidly. Establishing and maintaining trust is not only the core element in scientific research team management but also the basis for any team management. The trust from team to team member is to show the confidence on their abilities and loyalty. The trust among the team members is to show that one trust the other that he can accomplish mission on time. To build confidence in the team and cooperation culture, team members must firstly recognize the individual differences, that is, to accept the recognition and respect for individual skills, attitudes, as well as cultural backgrounds. First, at the beginning of the team established, team must allow free interaction and communication and freedom to talk about their ideas and opinions perish. On this basis, to deepen mutual understanding among the members, achieve trust among members. Meanwhile, regular face-to-face or top-to-down communication conference is essential. During completing organizational mandates process, to enhance awareness of teamwork spirit and encourage team joint efforts as well as strengthening the impotence of corporation as establishment of a cooperative culture.

5.2 The Type of Transaction-based Psychological Contract

1. A Fair and Diversified Payment System

An equity theory predicts that inspiring is not influenced only by the absolute returns, but also by the relative returns. Therefore, the results emphasize the equitable distribution should also be emphasized that the fair allocation process, also combine the economy in the short-term incentive compensation (such as wages and bonuses) with long-term incentive. In addition, a wide range of economic rewards contains the salary system and other compensation, such as joined this opportunity, honor, information sharing social status, etc. Therefore, to manage the scientific research team must use diversity payment system according to individual contribution to the team and based on physical inspiring and strengthen spirit of motivation in order to achieve more effect.

2. Competition System

Stable status may cause no motivation in the team. Under integration of human resources in the global and increasingly fierce market competition, competition makes people really stand out, people in the competition to gain recognition of their abilities. For reflecting their abilities in the competition, the members have to rationally choose working hard. A stable job is competitive job itself, which will be pursuit by everyone. Therefore, it can be treated as valuable thing itself to inspire members to keep this job by constantly compete with each other.

5.3 The Type of Relationship-based Psychological Contract

1. Establish Perfect Member Career Development and Training System

A theory indicates that people are always inspired by their expectation. They always make action relying on the expectations on the future outcome. During the economy and information period, Learning, growth and development are great significance for each member.

Members hope to improve their quality to meet the social development through continuous learning. To realize their own value in order to create more opportunities, which is dominated by fulfilled scientific knowledge workers is especially important. Therefore, mid level managers must be given adequate space for personal development to meet the needs of members of self-development request. They can treat the team goal as a starting point, offer members training and learning opportunities according to the characteristics of their status. Therefore, the corporation may not only help members improve their skills and improve team efficiency, but also increase understanding and

support among members. Also to do this can stimulated and encourage members apply their knowledge, and active new technologies and new methods in daily work.

2. Proper Separation of Powers and Authority

There is a trend in the management concept that Separation of powers and authority through appropriate to motivate employees. Knowledge-based staff members of research teams are not only a premium on good relationships, reasonable pay and personal growth, but also treat working independently. They are generally very strong self-awareness and hope for working with their favorite way to spend their free time in a job, and collect the information according to their own self-control decisions according to these characteristics of independence and strong demand for autonomy. Managers must strive to create trust, harmony, relaxed atmosphere, with full respect for the personality development of members, professional characteristics, creativity and autonomy, and everyone's working style. Furthermore, Managers must granted greater autonomy and the autonomy of members, and use members of the self-management, self-monitoring instead of the mandatory scheme and close supervision, to mobilize the enthusiasm of members to create desire and motivate members to improve the team's overall performance, as well as reduce management costs.

3. Provide Meaningful Works to Members

In general, the basic needs have been satisfied among members of the research team. Therefore, the most inspiring things is to meet the high level of achievement. Most of them want to get the status to gain their spirit and performance satisfaction. They expected reflect their own value through a creative and challenging work. Therefore, managers should be to provide members with professional work evolved challenges of their work to meet their pursuit of psychological success, so that they have the greatest satisfaction.

6 CONCLUSIONS

By psychological contracts nature, psychological contracts vary significantly across groups and even across different sections or units of the same group. Exploratory factor analysis (EFA) has conducted to underlying constructs regarding an individual's obligation to the university. Three underlying factors were found and are referred to as meet 'academic expectations', 'commitment' and finally 'above and beyond'. The qualitative research of the paper identified four key foci of academic responsibility-the university, the discipline, society and students, which greatly influenced the formation and effects of member incentive of scientific research group based on psychological contracts.

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