# A Quality Assured System of Selecting and Promoting Athletic Talents[1]

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## 1 Background

Talent identification and development (TID) are crucial issues for the future development and the sustainability of elite sport in a country (DSB/BL, 2000; Rost, Pfeiffer & Ostrowski, 2001). For example, the systematic TID system (ESA) of the former GDR was a fundamental pillar of GDRs tremendous international success in the area of elite sport. More recently, in preparation of the Summer Olympics in Sydney 2000 Australia successfully adopted some elements of the GDR TID-approach by implementing a „TALENT SEARCH PROGRAM". In contrast, the West German system of elite sport did never develop such an systematic approach of TID (Hoare, 1996). Even after reunification in 1990 elements of the successful ESA system were not seriously considered as appropriate measures of TID in a pluralistic society.

The quality of a TID system, may influence the international success of a countrys elite sport in various ways. For example, a comparison of the results of the last olympic summer games showed a particular decrease in medals for Germany (figure 1).

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| Nation | 1992 | 1996 | 2000 |
|--------|------|------|------|
| 🇺🇸 | 13,6 | 13,3 | 11,1 |
| 🇷🇺 | 15,1 (GUS) | 8,2 | 9,8 |
| 🇨🇳 | 6,8 | 6,3 | 7,2 |
| 🇦🇺 | 3,2 | 4,1 | 6,3 |
| 🇩🇪 | 10,6 | 7,4 | 5,4 |

Figure 1:   Medals - TOP 5 Nations (Friedrich, 2001)

At the same time, the German olympic team was the oldest team at the last olympic games and it was also the team with the lowest retention rate (figure 2). In particular regarding the latter point, a high retention rate has been emphasised as a major condition of further olympic success (Pfützner, Reiß, Rost & Tuennemann, 2001).

| Nation | Average age | Retention rate |
|--------|-------------|----------------|
| 🇺🇸 | 27,3 | 72% |
| 🇷🇺 | 26,0 | 40% |
| 🇨🇳 | 23,4 | 50% |
| 🇦🇺 | 26,6 | 66% |
| 🇩🇪 | 27,5 | 18% |

Figure 2:   Average age and retention rate of the TOP 5 Nations

A high retention rate may be affected by both the quantity of potential talents available and the quality of the TID system. While talent development in China can start with about 120 million kids in the age of 10-14, respectively 20 Million in the US, the base in Germany is only 4,6 Million, in Australia only 1,3 Million (figure 3). Therefore, especially countries with a smaller population seem to be depending on a very systematic approach of TID. Australia with the smallest population of the TOP 5 indeed recently has implemented a systematic Talent Search Programme, which already showed several achievements with regard to national and international championships (Ziemainz & Gulbin, 2001).

| Nation | 10-14 years | 15-19 years | Total | Useful Talent |
|---|---|---|---|---|
| 🇺🇸 | 20 | 20 | 40 | 4 |
| 🇷🇺 | 13 | 15 | 28 | 2,8 |
| 🇨🇳 | 120 | 99 | 219 | 21,9 |
| 🇦🇺 | 1,3 | 1,3 | 2,6 | 0,26 |
| 🇩🇪 | 4,6 | 4,6 | 9,2 | 0,92 |

Figure 3: The base of the TOP 5 Nations

Despite the importance of TID systems for the future of elite sport, the quality of such systems has not been systematically analysed. In particular, there is a lack of comparative studies which consider the political and cultural background (e.g. totalitarian vs. pluralistic societies) of TID systems. Moreover, in times of restricted resources and increased inter-national competition, the effectiveness and efficiency of both procedures and institutions of TID become increasingly important. Traditional evaluation, however, often concentrates only on measuring outcomes, thus, leaving athletes, coaches and officials alone with a critical review and the question: But how to improve? – Against this, quality management also relates to structures and processes which are major determinants of TID outcomes.

The present study used a theoretical model of quality and quality management.

## 2        Theoretical Model

The model (figure 4) for the investigation of quality features of different TID-systems is based on three quality dimensions as introduced by Donabedian (1966), i.e. structure, process, and outcome.
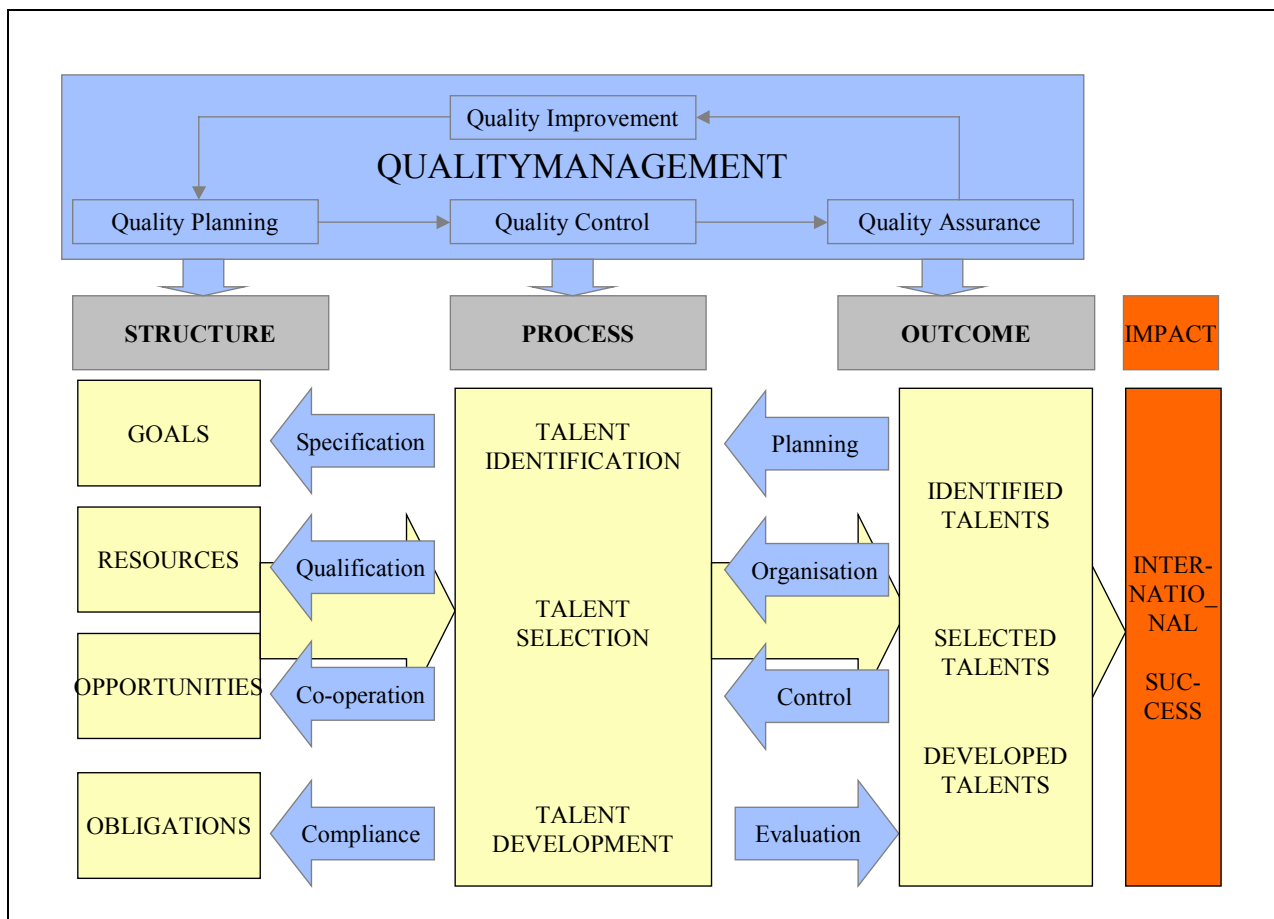


Figure 4:      The model of quality and quality management in TID

According to figure 4 structure describes the physical, organizational and other characteristics of a system that provides talent identification, -selection, and -development and of its environment. Process describes what is done in identifying, selecting and developing talent. Outcome describes what is achieved by the TID system, e.g. selected and developed talents or dropped out athletes, and what may finally result in international success (Impact). Quality management refers to different measures of quality planning, control, assurance and improvement. For example indicators of quality management are the specification of goals, the qualification of personal or the documentation and evaluation of processes and outcomes (Ruetten, Ziemainz & Roeger, in press).

# 3 Methods and Objective

One aim of the study was a comprehensive comparison of Talent Identification and Development (TID) systems. Differences and similarities of TID systems that are used by four of the "Top-5-Nations" – Australia, China, Germany and USA – were evaluated. The investigation was carried out in four sports – Athletics, Gymnastics, Swimming and Volleyball. Respondents were officials, coaches, and athletes in the talent systems of the four nations. These respondents werde considered on three levels of inquiry: the national, the state and the regional or local level. After a first phase of quality research including a series of indepth interviews, a questionaire has been developed and used for a survey in Australia, China, Germany and USA.

In Figure 5 the preliminary return rate of this survey (date: 17.11.2003) is represented.

|  | GER* | AUS** | USA*** | N (tog.) |
|---|---|---|---|---|
| Officials | 28 (96,6%) | 26 (100%) | 23 (100%) | 77 (98,7) |
| Coaches | 43 (89,6%) | 40 (83,3) | 25 (52,1) | 108 (75,0) |
| Athletes | 141 (78,3) | 89 (49,4) | 40 (22,2) | 270 (50,0) |
| N (tog.) | 212 (82,5%) | 155 (61,0) | 88 (35,1) | 455 (59,7) |

Figure 5: Preliminary return rate of the survey, date: 17.11.03
(*survey closed, ** survey for coaches, and officials closed,
***survey for officials closed, China: survey for all groups of respondents still in progress)

# 4 First Results

A description of preliminary results firstly deals with the predictive power of the general model, and then concentrates on a comparison of Australia and Germany. With regard to the general model, the perceived quality of TID-structures and processes predicted more than 50 % of the variance of perceived TID-outcomes. The strongest predictors for positive outcomes in talent identification and selection for example were resources (e.g.

finances, personal, infrastructures), and opportunities (e.g. economic or scientific support) (Figure 6).
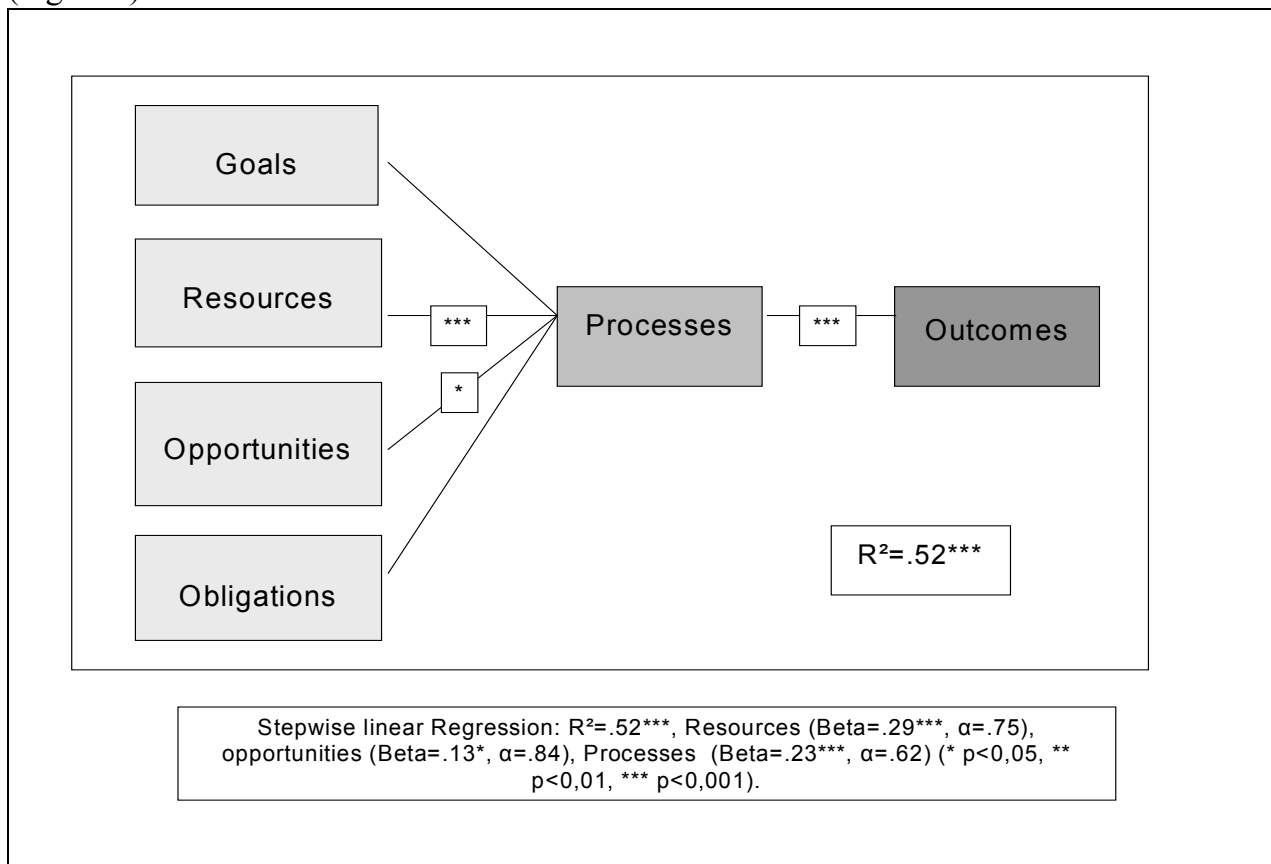


Figure 6:  Predictors of Talent Identification Outcomes

With regard to a comparison between nations, Australian athletes, coaches and officials had a significantly better perception of resources (especially better financial resources) and opportunities (especially support by school, and economic support) than their German counterparts.

Further results indicated that specific deficits of German TID-system were located at the local level. For example in talent identification and selection, as shown in figure 7, financial resources (Australia local M: 2,83; Germany local M: 1,63; $p < 0,001$ (5 point likert scale: 1 doesn't apply at all – 5 does totally apply)) and the qualification of teachers (Australia local M: 2,33; Germany local M: 1,96) may be responsible factors for deficits in talent identification at the German local level. For the quality of opportunities results showed deficits in Germany in the context of cooperation between schools and the TID-system at the local level (Australia local M: 3,41; Germany local M: 2,75; $p < 0,05$ (Score: 1 worsened a lot – 5 improved a lot)) and of the quantity of talents (Australia local M: 3,64; Germany local M: 2,94; $p < 0,01$).
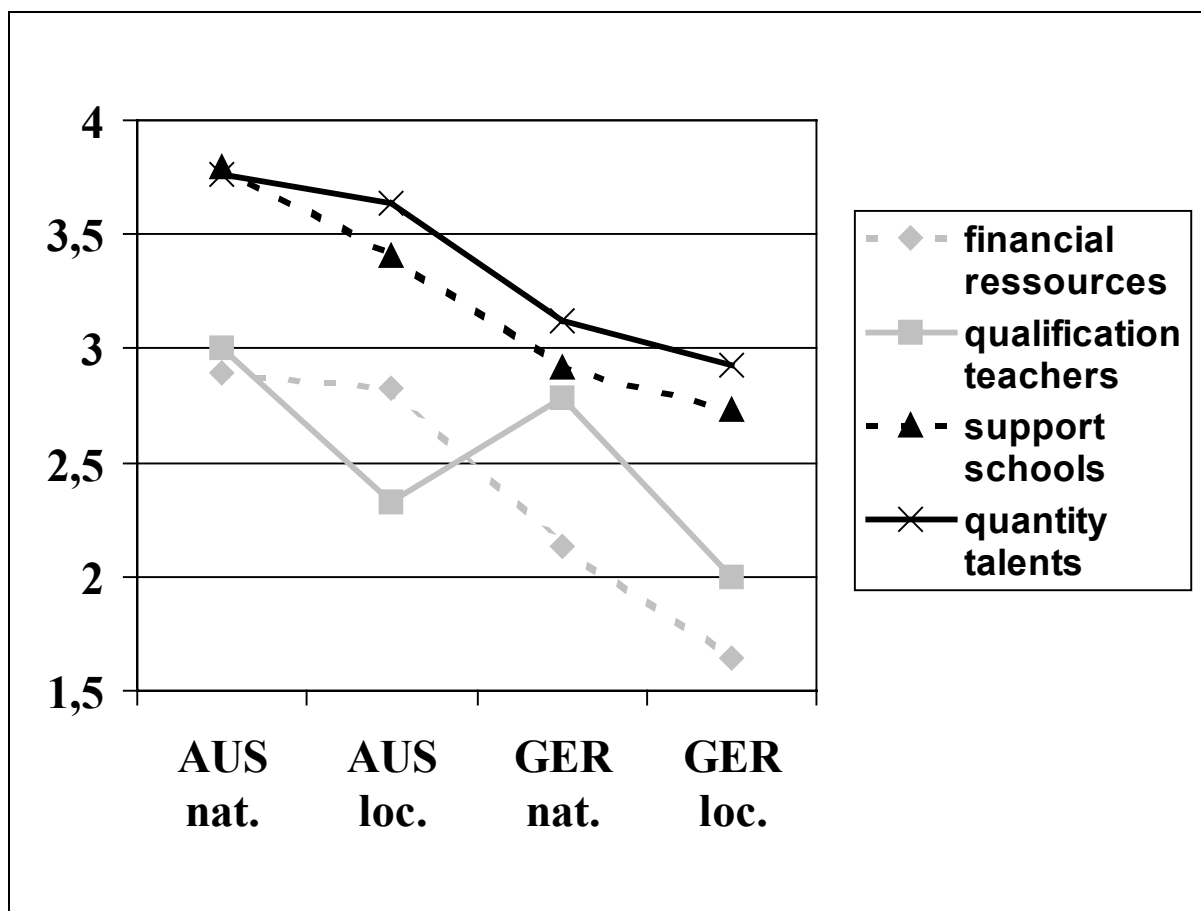
Figure7:    Comparison of significant predictors of Talent Identification
            (resources and opportunities) in Australia and Germany for the national and
            local level

## 5        Preliminary Conclusions

Before discussing potential implications of the results, the limitations of the present study
have to be considered. In particular, the study focused on the perceptions of athletes,
coaches and officials rather than measuring structures, processes and outcomes in a more
objective manner. Thus, external indicators should be included in further analysis to test
the validity of the results produced so far.

From the present point of view, three preliminary conclusions can be drawn:

1.    The general model applied in the present study showed high explanatory power with
      regard to the prediction  of TID outcomes. Within the model, the quality of resources
      and opportunities related to TID processes turned out to be the strongest determinants
      of the quality of TID outcomes. This might suggest to use the model to develop
      appropriate measures for improving the most relevant TID quality structures.

2.    In comparison to the Australian TID system, TID in Germany showed general defi-
      cits regarding significant predictors of positive TID outcomes. For example, the

Australiens had a better perception of the quality of ressources and opportunities than the Germans. This might suggest that TID in Germany should especially focus on improving the most relevant resources and opportunities

3.  In comparison to Australia and to TID at the German national level, TID in Germany showed specific deficits at the local level. For example, in terms of talent identification the Germans perceived the quality of qualification of teachers for talent identification or the support by schools poorer than their Australian counterparts. So far, these basic local structures of TID have not been considered  adequately (Fessler 1999, Knoll 2001).

Based on these conclusions, a new approach, particulary focusing on the local level has been developed and will try to improve economic and scientific support, cooperation between schools and clubs, and qualification of teachers and coaches in the German TID system. A major pillar of this new approach is partnership building (Ruetten, Roeger & Ziemainz, 2003).

## 6      Literture

Deutscher Sportbund/Bereich Leistungssport (DSB/BL) (2000). *XXVII. Olympische Sommerspiele 2000. Internationale und nationale Sportanalyse*. Frankfurt/Main.

Donabedian, A. (1966). Evaluating the quality of medical care. *Milbank Memorial Found Quarterly, 44* (3), 166-206.

Fessler, N. (1999). *Talentsichtung und Talentförderung im Leistungssport – Eine strukturanalytische Untersuchung der Talentfördergruppen in Baden-Württemberg*. Schorndorf.

Friedrich, E. (2001). Die Olympiamannschaft Deutschlands bei den Sommerspielen Sydney 2000. *Leistungssport, 31(1), 30-36*.

Hoare, D. (1996). The Australian National Talent Search Program. *Coaching Focus, 31*, 3-4.

Knoll, M. (2001). Nachwuchsförderung unterhalb des Landeskaders. Ein Beitrag aus der Sicht von Trainern und Athleten in Hessen. *Leistungssport, 31* (4), 23-27.

Pfuetzner, A., Reiß, M., Rost, K. & Tuennemann, H. (2001). Internationale und nationale Entwicklungstendenzen auf der Grundlage der Ergebnisse der Olympischen Sommerspiele in Sydney mit Folgerungen für den Olympiazyklus 2004. *Leistungssport, 31* (1), 20-25.

Rost, K., Pfeiffer, M. & Ostrowski, C. (2001). Wo stehen wir in der Nachwuchsförderung. *Leistungssport, 31* (4), 5-13.

Ruetten, A., Roeger, U. & Ziemainz, H. (2003*). Implementierung eines Qualitätsmanagementsystems in der Talentsuche, -auswahl und -förderung – ein regionaler Ansatz*. Forschungsantrag BISp.

Ruetten, A., Ziemainz, H. & Roeger, U. (in press). A Quality Assured System of Selecting and Promoting Athletic Talents. In: H. Ziemainz, U. Röger & Rütten, A. (Eds.), *Talent Identification, Selection and Development: Problems and Perspectives*. Butzbach1983.

Ziemainz, H. & Gulbin, J. (2001). Talentsuche, -auswahl und -förderung am Beispiel des australischen TALENT SEARCH-Programm. *Leistungssport, 31* (6), 43-46.