Is Problem-based Learning beneficial for undergraduate nursing students? A South African perspective

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INTRODUCTION AND BACKGROUND

- PBL conceptualized in 1993; introduced in 1995 into the 4-year Bachelor's degree programme
- Drivers for PBL:
  - anticipated passing of "Apartheid"
  - birth of a new democracy
  - educational change
  - university (Wits) reality

- But global examples are mostly in graduate and postgraduate education!

INTRODUCTION AND BACKGROUND

- **PBL expectations:**
  - Improve certain skills e.g. working together, communication, problem solving, self- assessment etc.
  - Develop self-directed learning (SDL), though it's also required for PBL
- **Questions posed?**
  - What is the baseline variability in SDL readiness; and
  - How does this change in students using two different curricular approaches?
  - Does PBL make a difference to students acquiring certain skills?

SKILLS THAT WE'RE INTERESTED IN..?

Those learnt in PBL tutorials:

- Critical thinking
- Problem-solving
- Communication skills
- Personal growth
- Learning skills
- Contributions to group
- Leadership

APPROACH TO ANSWERING THE QUESTIONS

Study 1:

- Determine students' PBL tutorial performance/ skills using facilitator and self-assessment
- Compare skills scores across all 4 yrs of study
- Determine reliability between facilitator and student scores

Study 2:

- Determine students' SDL readiness in respect of:
  - Self management
  - Desire for learning
  - Self control
- Compare reported SDL readiness between students in PBL and LBL curricula

RESEARCH ETHICS

- University approval √
- Ethics Committee clearance √
- Institutional protocol and permission √
- Human rights √

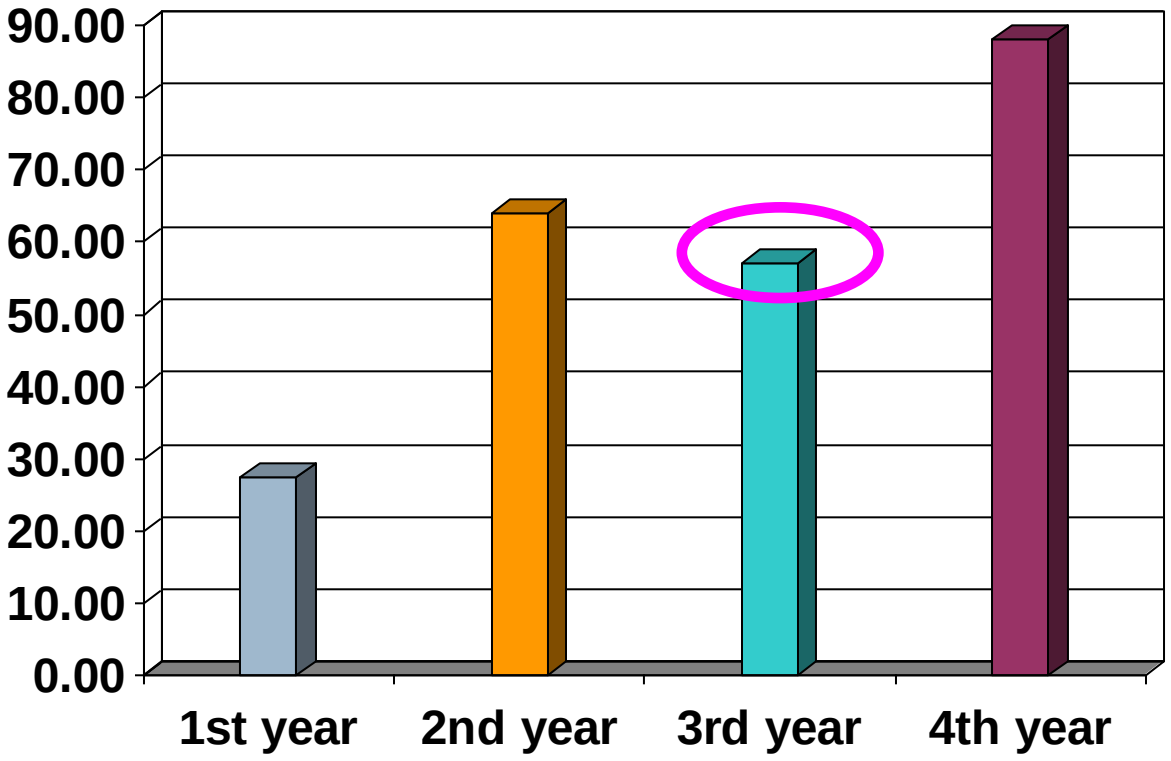
DESIGN AND METHODS

- Methodological research to validate tool:
  - Tutorial Performance Evaluator (TPE)
- Cross-sectional, comparative, descriptive design
- Sample: B. Nursing students (n=53)
- Sample: Facilitators (n=6)
- Data collection: TPE measuring all 7 skills
- Data analysis: ANOVA; Bonferoni's test

RESULTS:
Mean scores per PBL tutorial skill

	1st year		2nd year		3rd year		4th year	
Tutorial skills	**%**	**SD**	**%**	**SD**	**%**	**SD**	**%**	**SD**
Contributions	15.3	10.3	55.8	19.2	43.7	13.2	85.5	19.1
Communication	35.7	26.5	81.3	25.7	64.4	13.9	87.4	15.2
Problem solving	25.2	15.3	57.4	22.5	59.3	10.6	83.5	19.2
Critical thinking	23.5	12.7	60.6	24.7	58.9	17.4	89.6	13.4
Learning skills	26.1	13.9	67.4	20.4	59.6	13.0	91.9	11.2
Personal growth	35.0	14.8	67.0	20.1	56.5	14.6	93.4	5.3
Leadership	30.3	10.7	58.6	24.5	57.4	13.7	84.4	17.5

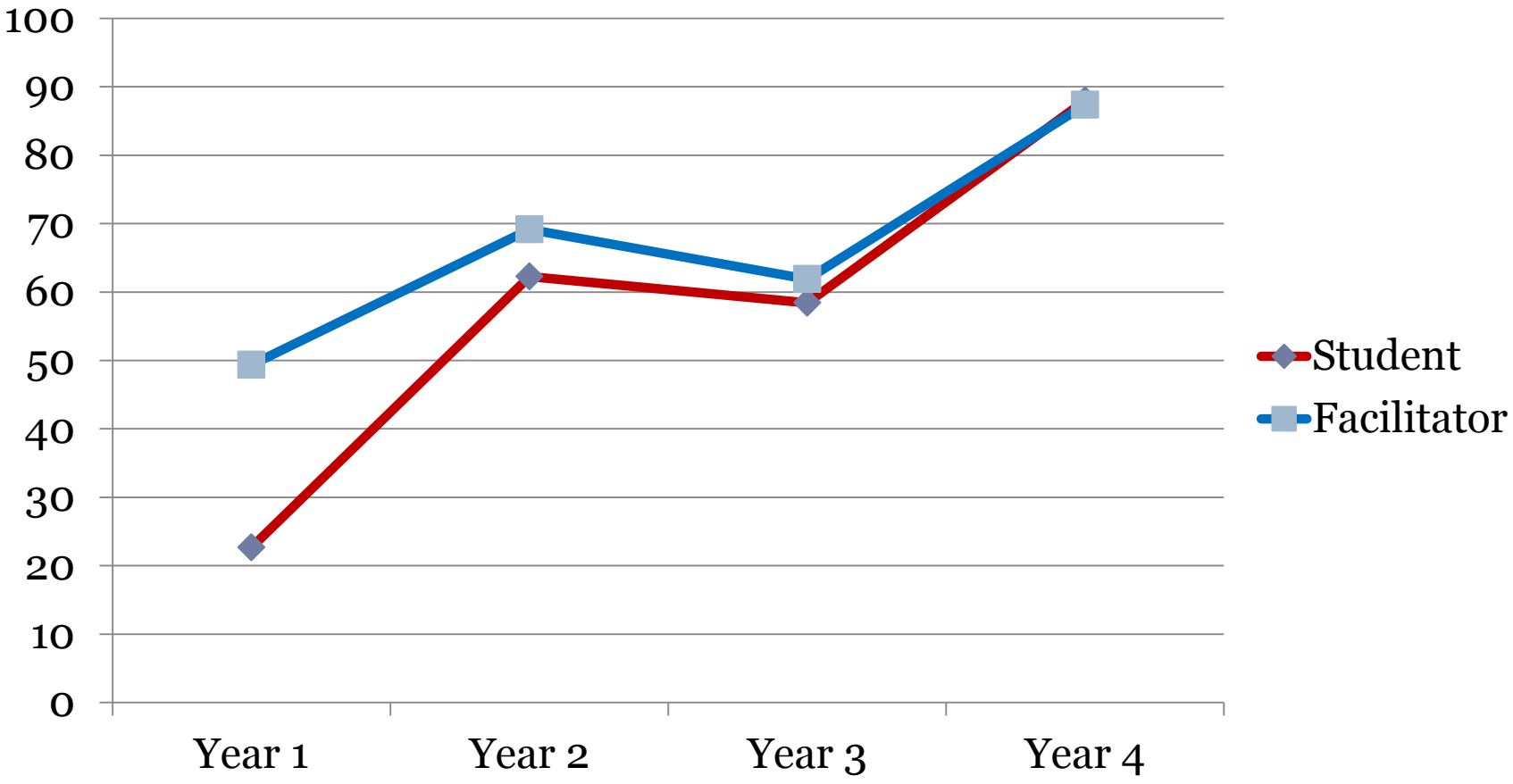
OVERALL PBL TUTORIAL PERFORMANCE SCORES



STATISTICAL SIGNIFICANCE?

- Significant difference between 1st and 4th year in:
  - contributions (df=3; F=41.86; p<0.05)
  - problem solving (df=3; F=18.62; p=0.0001)
  - critical thinking (df=3; F=23.86; p=0.000)
- Communication skills significant only between 1st and 2nd year (p=0.000)
- Decline in performance of 3rd year students not statistically significant (p>0.05)

RESULTS:
Facilitator and student assessment



RESULTS:
Facilitator and student self assessment

Year of Study	Group	%	SD
First	Facilitator	22.67	16.6
	Student	49.35	10.0
Second	Facilitator	62.25	21.6
	Student	69.17	13.5
Third	Facilitator	58.45	11.4
	Student	61.92	5.4
Fourth	Facilitator	87.98	10.6
	Student	87.35	11.3

SELF-DIRECTED LEARNING (SDL)

- How well are students prepared for SDL?
  - Self- management
  - Desire for learning
  - Self-control
- How do “PBL students” compare with “traditional students” (LBL)?

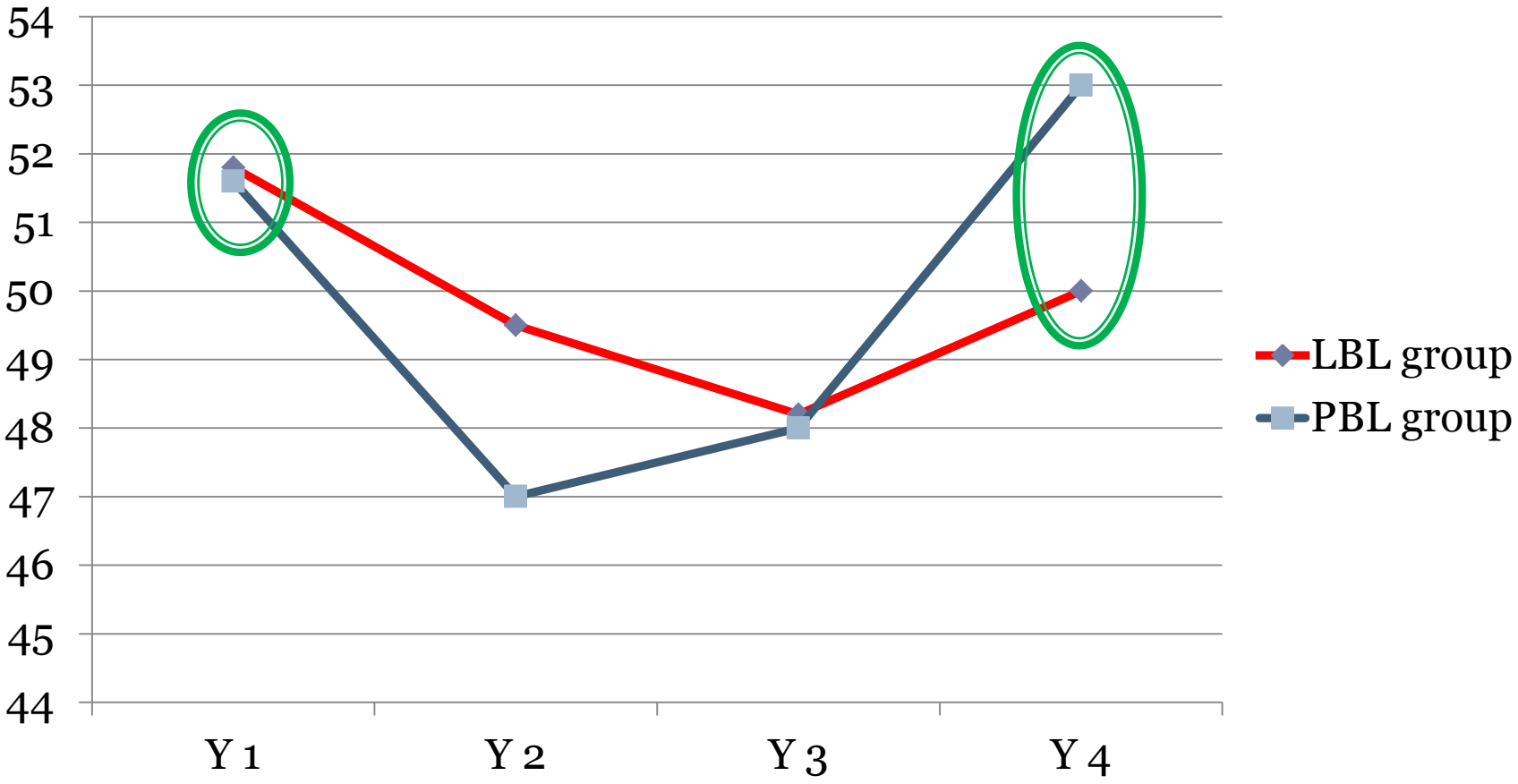
DESIGN AND METHODS

- Cross-sectional, comparative design
- Student population (N=201):
  - Sample: n=159 (79.1%)
  - PBL group (n=54); LBL group (n=105)
- Instrument: 40-item SDLR questionnaire (Fisher et al, 2001); 5-point Likert scale
- Data analysis: STATA version 9
  - Descriptive statistics
  - Chi square test for group comparisons

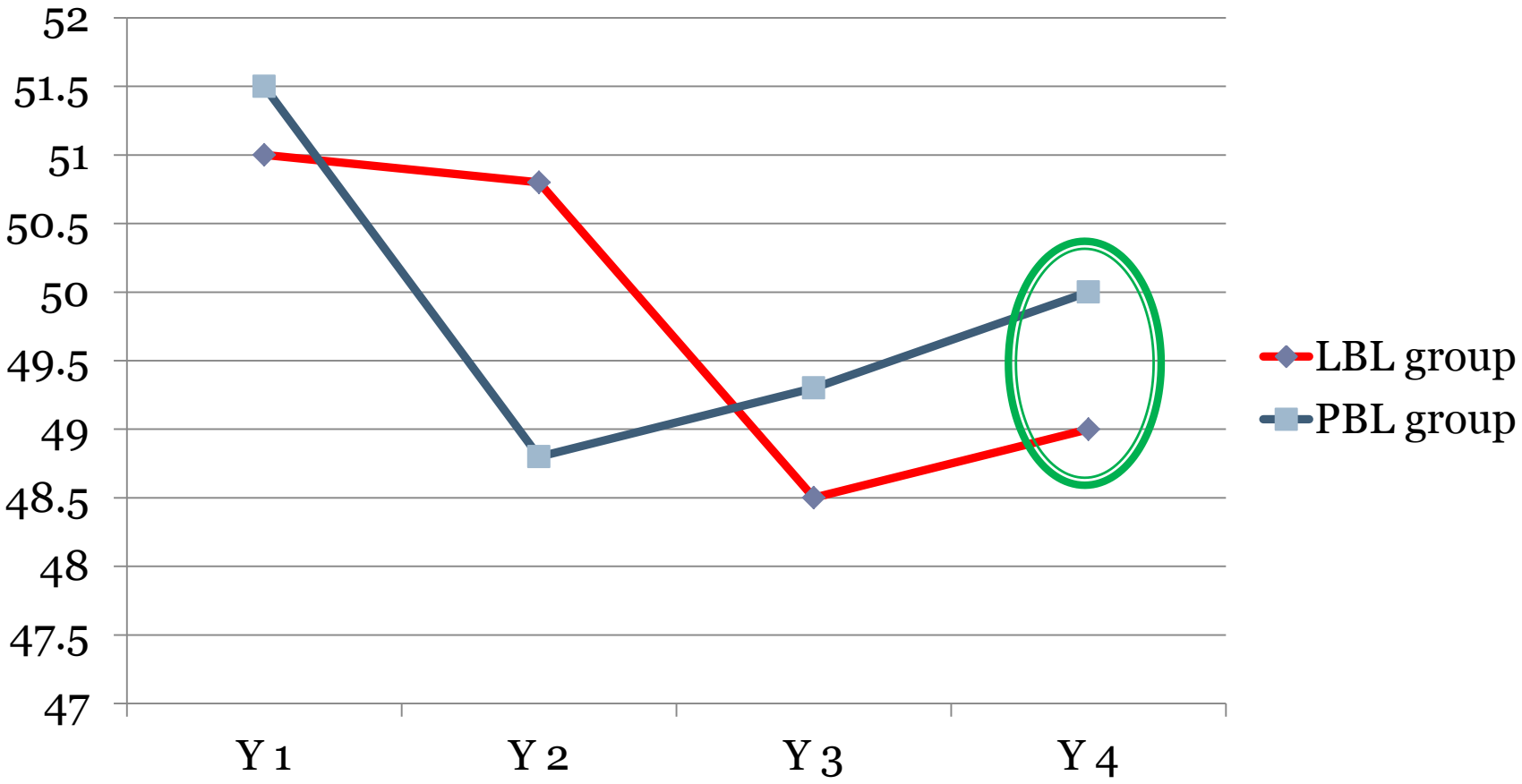
RESULTS: SAMPLE CHARACTERISTICS

- Baseline information:
  - PBL $\bar{x}$ age = 22.4 yrs; LBL $\bar{x}$ age = 22.6yrs
  - PBL : 77.8% female; LBL: 82.1% female
  - No prior studies = 98.1% for both groups

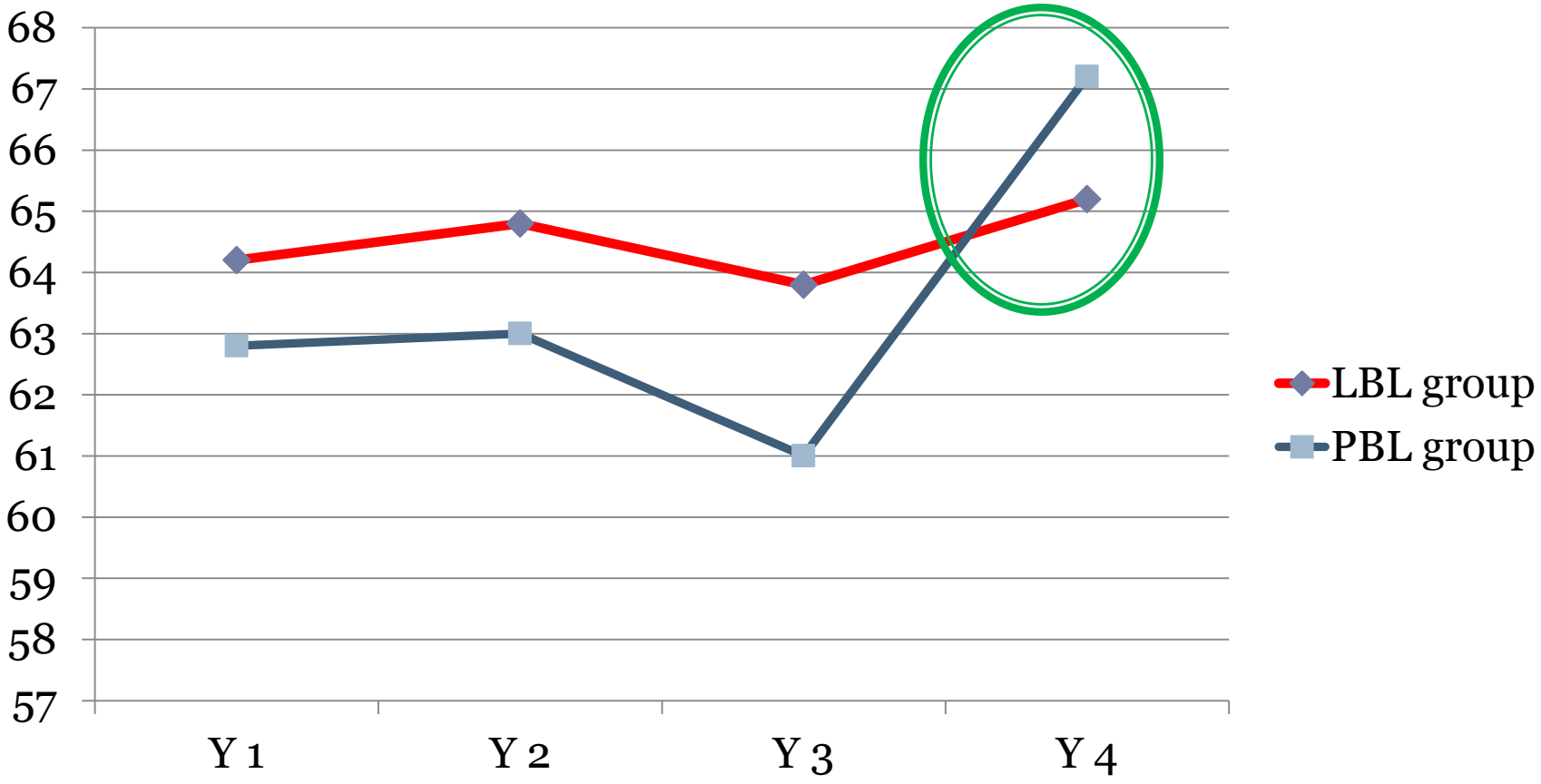
RESULTS: Self-management



RESULTS: Desire for learning



RESULTS: Self-control



STATISTICAL SIGNIFICANCE?

- Self management
  - NS (χ^2= 8.409; df = 6; p= 0.82)
- Desire for learning
  - NS (χ^2= 12.609; df = 6; p= 0.90)
- Self-control
  - NS (χ^2= 12.586; df = 6; p= 0.17)

IS PBL BENEFICIAL?

- Promotes the development of problem solving, critical thinking and communication skills
- Facilitates the contextual integration of knowledge as learning skills develop
- Enables leadership to develop as students take on different roles within tutorial groups, and…
- Enhances their personal growth

IS PBL BENEFICIAL? (cont.)

- Students become better at assessing themselves
- At senior level, self-assessment is closely aligned to that of a professional and is highly reliable
- For SDL readiness:
  - Makes no difference to self-management, self-control and desire to learn, but
  - Educational gains are evident in self-control and self-management for the PBL group


Thank you